



**Planet Depos®**  
We Make It *Happen*™

---

# Transcript of Mark N. Horenstein, Ph.D.

**Date:** June 27, 2024

**Case:** College Products, Inc. -v- Intirion Corporation (PTAB)

**Planet Depos**

**Phone:** 888.433.3767

**Email:** [transcripts@planetdepos.com](mailto:transcripts@planetdepos.com)

[www.planetdepos.com](http://www.planetdepos.com)

1 UNITED STATES PATENT AND TRADEMARK OFFICE

2  
3 BEFORE THE PATENT TRIAL AND APPEAL BOARD

4  
5 COLLEGE PRODUCTS, INC.

6 Petitioner,

7 v.

8 INTIRION CORPORATION,

9 Patent Owner.

10  
11 Case PGR2024-00003

12 U.S. Patent 11,674,745

13  
14 Case PGR2024-00004

15 U.S. Patent 11,674,746

16  
17 Deposition of MARK N. HORENSTEIN, PH.D.

18 Washington, D.C.

19 Thursday, June 27, 2024

20 Job No. 542586 9:06 a.m.

21 Pages 1 - 140

22 Reported by: Karen Young

1           Deposition of MARK N. HORENSTEIN, PH.D., held  
2           at the offices of:

3                   BLANK ROME LLP

4                   1825 Eye Street, Northwest

5                   Washington, D.C. 20006

6                   (202) 420-2200

7  
8  
9  
10  
11           Pursuant to notice, before Karen Young,  
12           Notary Public of the District of Columbia.

1                   A P P E A R A N C E S  
2       ON BEHALF OF COLLEGE PRODUCTS, INC. and  
3       THE WITNESS:  
4           RUSSELL T. WONG, ESQUIRE  
5           MEGAN WOOD, ESQUIRE  
6           BLANK ROME LLP  
7           717 Texas Avenue, Suite 1400  
8           Houston, Texas 77002  
9           (713) 228-6605  
10  
11       ON BEHALF OF INTIRION CORPORATION:  
12           R. SCOTT JOHNSON, ESQUIRE  
13           THOMAS M. PATTON, ESQUIRE  
14           FREDRIKSON & BYRON, P.A.  
15           111 East Grand Avenue, Suite 301  
16           Des Moines, Iowa 50309-1884  
17           (515) 242-8900  
18  
19  
20  
21  
22

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22

C O N T E N T S

| EXAMINATION OF MARK N. HORENSTEIN, PH.D. | PAGE |
|------------------------------------------|------|
| By Mr. Johnson.....                      | 6    |
| By Mr. Wong.....                         | 136  |

E X H I B I T S

(Attached to Transcript)

|           |                                |    |
|-----------|--------------------------------|----|
| Exhibit 1 | Notice of Deposition,          |    |
|           | PGR2024-00003.....             | 10 |
| Exhibit 2 | Notice of Deposition,          |    |
|           | PGR2024-00004.....             | 10 |
| Exhibit 3 | U.S. Patent No. 5,455,507..... | 43 |

|    |                                              |     |
|----|----------------------------------------------|-----|
| 1  | PREVIOUSLY MARKED EXHIBITS                   |     |
| 2  | Exhibit 1001 U.S. Patent No. 11,674,746..... | 12  |
| 3  | Exhibit 1002 Declaration of Mark N.          |     |
| 4  | Horenstein in Support of the Petitions       |     |
| 5  | for Inter Partes Review.....                 | 16  |
| 6  | Exhibit 1011 U.S. Patent Application         |     |
| 7  | Publication No. 2009/0188911.....            | 63  |
| 8  | Exhibit 1012 Northeastern University         |     |
| 9  | Publication, 4/17/07.....                    | 78  |
| 10 | Exhibit 1014 U.S. Patent No. 4,496,817.....  | 117 |
| 11 | Exhibit 1015 U.S. Patent No. 8,446,048.....  | 129 |
| 12 | Exhibit 1020 U.S. Patent Application         |     |
| 13 | Publication No. 2012/0276763.....            | 135 |
| 14 | Exhibit 1023 Supplemental Declaration of     |     |
| 15 | Mark N. Horenstein in Support of             |     |
| 16 | Petitions for Post Grant Review,             |     |
| 17 | PGR2024-00004 and PGR2024-00003.....         | 47  |
| 18 | Exhibit 1023 Supplemental Declaration of     |     |
| 19 | Mark N. Horenstein in Support of the         |     |
| 20 | Petitions for Post Grant Review,             |     |
| 21 | PGR2024-00003 and PGR2024-_____.....         | 48  |
| 22 |                                              |     |

1 P R O C E E D I N G S

2 (Deposition Exhibit Numbers 1 and 2 were  
3 marked for identification.)

4 MARK N. HORENSTEIN, PH.D.,  
5 having been duly sworn, was examined as follows:

6 - - -

7 EXAMINATION BY COUNSEL FOR INTIRION CORPORATION  
8 BY MR. JOHNSON:

9 Q Could you please state your name for the  
10 record, sir?

11 A Mark Horenstein.

12 Q And is it Professor Horenstein? Is that  
13 okay to call you today?

14 A Yeah, I'm called professor.

15 Q Professor Horenstein, have you ever been  
16 deposed before?

17 A Yes.

18 Q When was the last time you were deposed,  
19 sir?

20 A Don't recall exactly. Sometime within  
21 the past year.

22 Q And was that on an intellectual property

1 matter?

2 A Yes.

3 Q What was the nature of that matter?

4 A I don't recall offhand.

5 Q Was it a District Court proceeding or was  
6 it a proceeding before the Patent Trademark Trial  
7 and Appeal Board?

8 A I believe it was before the -- the ITC.

9 Q International Trade Commission; is that  
10 correct?

11 A Yes, it is coming back to me.

12 Q Okay. Just going to go over a few rules  
13 of the deposition just to refresh your recollection  
14 a little bit there, and this is, as you know, a  
15 matter that's pending before the Patent Trial and  
16 Appeal Board in what's called a post grant review  
17 process. You understand that, sir?

18 A Yes.

19 Q Generally today I'm going to ask you  
20 questions, and I'm going to ask that you answer  
21 those questions in an audible form. Is that okay?

22 A Yes.

1           Q     All right. The court reporter only has  
2     one set of hands, so I'm going to do my best not to  
3     talk over you, and I would just ask that you do the  
4     same. Is that okay?

5           A     Yes.

6           Q     Great. If at any time today you don't  
7     understand a question that I ask you, please ask me  
8     to rephrase it and I will do my best to do so. Is  
9     that all right?

10          A     Yes.

11          Q     If you don't ask me to rephrase it, I'm  
12     going to assume that you understood the question.  
13     Is that fair?

14          A     Yes.

15          Q     If at any time today you need a break,  
16     just let myself or your counsel know. We'll do our  
17     best to accommodate you. The only exception to  
18     that is I ask that we not take breaks while  
19     questions are pending. Is that fair?

20          A     Yes.

21          Q     All right. As you know, this is a  
22     proceeding that's in front of the Patent Trial and

1 Appeal Board in a post grant review process, so  
2 today is essentially cross examination. Do you  
3 understand that?

4 A Yes.

5 Q You understand that as part of the post  
6 grant review process in depositions, you're not to  
7 speak with your counsel until your deposition is  
8 concluded unless there's a matter concerning  
9 privilege. You understand that?

10 A Can you clarify what a matter concerning  
11 privilege is? Do you mean -- tell me what you mean  
12 by that.

13 Q I mean the attorney-client privilege or  
14 the work product protections, and your counsel I'm  
15 sure will object from time to time if that's  
16 necessary.

17 A Okay.

18 Q Okay?

19 MR. WONG: Just a point of clarification.

20 MR. JOHNSON: Sure.

21 MR. WONG: I can speak to him about lunch  
22 and the weather.

1 BY MR. JOHNSON:

2 Q Absolutely. I meant substantively. No  
3 substantive conversations, that's correct. And  
4 you've already provided testimony in this case in  
5 the form of several declarations. Do you  
6 understand that, sir?

7 A Yes.

8 Q Okay. I should start out with just  
9 getting a few exhibits off of my pile. I'm going  
10 to hand you what's been marked as Horenstein  
11 Exhibit Number 1. Have you seen this before today,  
12 sir?

13 A I've not seen this specific document.

14 Q This is just a notice that we're planning  
15 to take your deposition today, and it was conducted  
16 -- or prepared with regard to PGR2024-3. Do you  
17 see that, sir?

18 A Yes.

19 Q And I'm going to hand you what's been  
20 marked as Horenstein Deposition Number 2, Exhibit  
21 Number 2.

22 MR. WONG: Thank you.

1 BY MR. JOHNSON:

2 Q And this is essentially the same  
3 document, giving you notice that we're going to  
4 take your deposition today for PGR2024-4. Do you  
5 see that, sir?

6 A Yes.

7 Q And these two post grant review  
8 proceedings you have submitted very, very similar  
9 reports in. Is that fair to say?

10 A Yes.

11 Q And so today's deposition is actually  
12 being taken for both of those post grant review  
13 proceedings. Do you understand that?

14 A Yes.

15 Q Okay. If at any time you believe you  
16 need to answer a question differently for one post  
17 grant review proceeding over the other, please just  
18 let me know and we'll try to make sure that you  
19 have adequate time to do so. Is that all right?

20 A Yes.

21 Q You understand that these post grant  
22 review proceedings involve two patents that are

1 owned by Intirion Corporation; is that correct?

2 A Correct.

3 Q I'm going to hand you what's been  
4 previously submitted as Petitioner Exhibit 1001.  
5 Can you tell me what that is please?

6 A It is a copy of U.S. patent 11,674,745.

7 Q And today I'm just going to refer to this  
8 as the '745 patent. Is that okay?

9 A Yes.

10 Q And you understand what I mean by that?

11 A Yes.

12 Q Okay, and have you read this patent prior  
13 to today?

14 A Just a point of info. This doesn't have  
15 an exhibit tag on it. Is that supposed to?

16 Q Does it have --

17 A A yellow tag?

18 Q It doesn't have a yellow tag on it  
19 because it's been submitted to the Patent Trial and  
20 Appeal Board.

21 A Sorry for interrupting, but --

22 Q You're fine. Good question. Several of

1 the exhibits today will just have the little  
2 petitioner exhibit --

3 A Understood.

4 Q -- indicated on there. That does mean  
5 that they've been previously filed with the board.

6 A Okay.

7 Q Okay. Have you read this patent prior to  
8 today?

9 A Yes.

10 Q Did you understand it?

11 A Yes.

12 Q I'm going to hand you what has been --  
13 that's a bad staple. Hand you what's been  
14 previously submitted also as Petitioner Exhibit  
15 1001 in the other post grant review proceeding.  
16 Can you tell me what this Exhibit 1 is?

17 A U.S. patent 11,674,746.

18 Q And today I'm going to refer to this as  
19 the '746 patent. Is that okay?

20 A Yes.

21 Q And you understand what I mean by that?

22 A Yes.

1           Q     And you've read this patent prior to  
2     today?

3           A     Yes.

4           Q     And you understood it?

5           A     Yes.

6           Q     Did you also review the file histories  
7     for these patents, sir?

8           A     Yes.

9           Q     Did you review all of the patents and  
10    applications that are listed on the covers of these  
11    patents? And for example, if we look at the '745  
12    patent, the first one that's listed there under  
13    U.S. patent documents is U.S. patent number  
14    4,383,158 to Niwa. Do you see that?

15          A     I do.

16          Q     Have you read that patent?

17          A     Which one?

18          Q     Niwa?

19          A     I don't recall.

20          Q     Do you recall reading any of the patents  
21    that have been listed on the references cited  
22    section of either the '745 or '746 patents?

1           A     Possibly, but I can't say that I  
2 definitely read them.

3           Q     You don't recall as you sit here today.  
4 Is that fair to say?

5           A     Yes, I may have, but I don't recall  
6 specifically having read them.

7           Q     When you reviewed the file histories for  
8 these patents, did you review the patents that were  
9 discovered by the examiner as part of the searches?

10          A     What I read would be synopsis of those  
11 patents as they appeared or discussed in the file  
12 history, but if you're asking me if I read the  
13 entire referred-to reference in its entirety,  
14 probably did not.

15          Q     Who prepared that synopsis for you, sir?

16          A     Well, when I'm saying synopsis, I mean  
17 reference to one -- reference to a cited patent as  
18 discussed in the file history.

19          Q     I see. You read the file history, and if  
20 it talked about a prior art patent, that's what  
21 your reading consisted of; is that correct?

22          A     Yes.

1           Q     Okay. You didn't go and try to pull  
2 every reference that was listed in the examiner's  
3 search report; is that correct?

4           A     That's correct that I did not.

5           Q     Let's talk about your qualifications for  
6 a bit. To do that, I'm going to get rid of the  
7 biggest exhibit in my stack, so thank you for  
8 saving my back on the way home. I am going to  
9 apologize -- let's go off the record for a second.

10                     (Discussion off the record)

11 BY MR. JOHNSON:

12          Q     Sir, I've handed you what has been marked  
13 as Petitioner Exhibit 1002, which is a declaration  
14 of Mark N. Horenstein in support of petitions for  
15 inter partes review of three patents. Do you see  
16 that, sir?

17          A     Yes.

18          Q     And is this a declaration that you  
19 prepared?

20          A     Yes.

21          Q     Did you write this declaration yourself?

22          A     I wrote the final version. The outline

1 of the report was a collaboration with the  
2 attorneys.

3 Q And did you sign this declaration?

4 A I did.

5 Q And does your signature appear on page  
6 204 of this document, which should be the back  
7 page.

8 A It does.

9 Q The date there says June 7, 2003. Fair  
10 to say you did not sign this document in 2003,  
11 correct?

12 A No, that is a typo that I noticed when I  
13 last read the document. I believe it should be  
14 2023.

15 Q 2023, and your version of this is broken  
16 up into two parts with your declaration in one and  
17 the appendices in another; is that correct?

18 A That's right.

19 Q But the document itself is all one  
20 document. We just did that basically to make sure  
21 they fit into the binder clips; is that correct?

22 A It's correct that they are in two --

1 bound in two separate sections.

2 Q But the page numbering continues, so the  
3 Appendix A starts with page 205, correct?

4 A That is correct.

5 Q If we look at Appendix A, that appears to  
6 be your C.V.; is that correct?

7 A Correct.

8 Q Is that C.V. current?

9 A It was current at the time that the  
10 declaration was submitted.

11 Q Okay. Have there been any changes to it  
12 since the time the declaration was submitted?

13 A A list of expert witness and litigation  
14 work in which testimony was given is missing the  
15 one I referred to earlier in our questioning.

16 Q Do you recall the parties in that ITC  
17 proceeding that you mentioned earlier?

18 A Yes, it was -- I do.

19 Q Who were those parties?

20 A It was Noco, complainant, and Horizon  
21 Brands, respondent.

22 Q Do you recall which party you

1 represented, or were testifying on behalf of, I  
2 should say?

3 A Horizon Brands.

4 Q Do you recall the general subject matter  
5 of that ITC proceeding?

6 A Yes.

7 Q What was it?

8 A It concerned battery pack jump starters  
9 for jump-starting vehicles.

10 Q Do you recall the outcome of that ITC  
11 proceeding?

12 A I've not been informed of the outcome.

13 Q Is it ongoing?

14 A I would assume so, but I haven't heard  
15 since the proceeding.

16 Q And you mentioned I believe earlier that  
17 you provided testimony in that proceeding; is that  
18 correct?

19 A That's right.

20 Q Was that through deposition?

21 A In part.

22 Q How else was testimony provided?

1           A     I testified at the hearing before the  
2     ITC.

3           Q     Did you also submit a report in that  
4     matter?

5           A     Yes.

6           Q     Did you submit more than one report?

7           A     I don't recall.

8           Q     I'd like to talk to you about the rest of  
9     your C.V. for a second here, sir. I see you list  
10    your employment history.

11          A     Yes.

12          Q     Is this employment history complete?

13          A     Employment history post graduation.

14          Q     Right, got you. Thanks. Nobody needs to  
15    know that I worked as a grocery clerk at IB in high  
16    school.

17          A     Similar for me.

18          Q     Yeah. When you worked at -- it appears  
19    you have had two full-time jobs, one at Boston  
20    University and the other at Spire Corporation; is  
21    that correct?

22          A     Yes.

1           Q     All right. At Boston University, you  
2 have been a professor; is that correct?

3           A     That's right.

4           Q     And you've been a professor at Boston  
5 University since 1979; is that correct?

6           A     Yes.

7           Q     And before that, you worked for --  
8 between 1978 and 1979 at Spire Corporation; is that  
9 correct?

10          A     Yes.

11          Q     And it says you were a research  
12 scientist; is that right?

13          A     Yes.

14          Q     What research did you do?

15          A     It says it right there. I worked on 400  
16 kilovolts, it should be energy storage systems for  
17 rapid deployment of stored energy.

18          Q     So fair to say the last time you were  
19 employed by industry was 1979; is that correct?

20          A     Full-time employed, 1979.

21          Q     Have you been employed by industry since  
22 1979 other than full-time basis?

1           A     Define what you mean by employed.

2           Q     I was trying to use your word, sir. I  
3     wasn't trying to make anything special about it.  
4     You said full time. Why did you make that  
5     distinction?

6           A     I have had several part-time engagements.

7           Q     Where you've been a consultant  
8     essentially?

9           A     A consultant or a part-time employee.

10          Q     And those aren't listed on your C.V.; is  
11     that correct?

12          A     Correct.

13          Q     Have you ever been a consultant for an  
14     appliance company?

15          A     Define --

16               MR. WONG: Objection, vague.

17          A     Define appliance.

18          Q     Consumer appliance company. Do you know  
19     what consumer appliances are, sir?

20          A     Tell me what you mean by consumer  
21     appliance.

22          Q     Well, refrigerators, microwaves, washing

1 machines, those types of appliances. Have you ever  
2 worked for a --

3 A You mean something that a consumer could  
4 buy for home use.

5 Q Correct.

6 A I have.

7 Q Which company?

8 A Don't recall the name of the company.  
9 Just the subject matter.

10 Q What was the subject matter?

11 A Retrofit radio consoles for automobiles.

12 Q Radio consoles for automobiles.

13 A Yes.

14 Q Got it. So new cassette decks, if I put  
15 it in my parlance; is that right?

16 A I don't remember if the unit had a  
17 cassette deck. It's basically today's vernacular,  
18 a young person would call it an amped up car  
19 stereo.

20 Q And when was that?

21 A Probably 20 years ago.

22 Q So not recently.

1           A     That's right.

2           Q     What do you understand the term "consumer  
3 appliance" to mean? How would you define it?

4           A     I think I asked you what you mean by  
5 consumer appliance.

6           Q     Now I get to ask you. What do you mean  
7 by consumer appliance?

8           A     What I said in answering my question was  
9 something that a consumer could purchase for home  
10 use.

11          Q     That's how you would define consumer  
12 appliance, something that a consumer could purchase  
13 for home use; is that correct?

14          A     In the most general sense.

15          Q     And the one time you've been a consultant  
16 for a consumer appliance is this radio console  
17 consulting that you did around 20 years ago,  
18 correct?

19          A     One time are your words. There may have  
20 been others. I would have to think about what they  
21 were and whether the consultation involved a  
22 consumer appliance versus a commercial appliance

1 because there have been numerous part-time jobs and  
2 consultations involving industrial types of  
3 appliances.

4 Q But you don't recall any other consumer  
5 appliance work that you've done as you sit here  
6 today, correct?

7 A I'm not saying there weren't any. I just  
8 can't think of them off the top of my head.

9 Q And that was my question. You can't  
10 recall any of those as you sit here today, correct?

11 A I can't name them at this moment.

12 Q And the reason I ask you that is because  
13 they're not listed on your C.V., correct?

14 A Right.

15 Q Right, so just trying to make sure I  
16 cover all my bases here, sir, so if you do recall  
17 any of them today, please let me know.

18 A Very good.

19 Q You mentioned consumer appliances and  
20 commercial or industrial appliances. What are  
21 commercial appliances as opposed to consumer  
22 appliances in your vernacular, sir?

1           A     It would be an apparatus or a device used  
2     by a company, and it could either be for their own  
3     internal use or a product they wished to sell to  
4     other industrial consumers.

5           Q     You understand this case is about small  
6     appliances of microwaves and refrigerators,  
7     correct?

8           A     It's correct that this case is about  
9     cooking appliances primarily.

10          Q     And refrigerators, you understand that,  
11     correct?

12          A     Yes, and refrigerators.

13          Q     Have you worked or done any work for a  
14     company that's ever been involved with microwaves?

15          A     What do you mean by microwaves?

16          Q     I mean microwave ovens, not the radiation  
17     version.

18          A     Fair enough.

19          Q     Yeah.

20          A     Just checking my bases.

21          Q     Understood.

22          A     I have not.

1           Q     And have you done any consulting for a  
2     company that has, you know, been making or  
3     designing refrigerators?

4           A     None that I can think of today.

5           Q     And have you done any work or consulting  
6     for a company that makes smoke sensors?

7           A     Again, it's very possible that I have. I  
8     just can't name you the specific company today.

9           Q     And there are none that are listed on  
10    your C.V., correct?

11          A     Right.

12          Q     And same question with regard to fire  
13    alarms. Have you done any consulting for any  
14    company that -- I should say -- let me rephrase  
15    that. Have you done any consulting for a company  
16    with regard to fire alarms?

17          A     Do you mean consulting work specifically  
18    involving the production of fire alarms?

19          Q     Yes.

20          A     I have not.

21          Q     Have you done any consulting related to  
22    appliances using smoke sensors?

1           A     Just to be clear, I've done work on all  
2 of the things you have mentioned, but not in the  
3 context of consulting for a company making the  
4 product involving the making of that product.

5           Q     You mean in academia? Is that what you  
6 referred to?

7                     MR. WONG: Objection, form.

8           A     Either in academia or through prior  
9 litigation work or just for personal purposes.

10          Q     And your declaration notes that you have  
11 practical knowledge of refrigeration and  
12 microwaves, cooking appliances, and have prepared  
13 several of such devices over the years.

14          A     That's right.

15          Q     What is the practical knowledge of  
16 refrigeration and microwave cooking appliances that  
17 you're referring to there, sir?

18          A     Well I understand the thermodynamic cycle  
19 by which a refrigerator works, as a start, and then  
20 I know about the component parts of what goes into  
21 a refrigerator, how the compressor works, and I've  
22 repaired one or more of my own refrigerators

1 several times, and -- sorry, could you -- I think  
2 I've answered your question unless you mentioned  
3 microwaves. Did you just say refrigerators?

4 Q I did mention microwaves.

5 A Okay, so I repaired my own microwave and  
6 those of friends several times, and I assisted a  
7 technician in replacing a magnetron in my own  
8 microwave as -- as examples.

9 Q When was the first time that you owned a  
10 microwave?

11 A At least as early as 1990, possibly  
12 before.

13 Q The microwave was invented I believe in  
14 1946. Was the first time you owned one in 1990?

15 A Well, right.

16 Q Okay. You've done some repair work on  
17 microwave ovens; is that correct?

18 A If we could back up to your previous  
19 question, you said the microwave was invented in  
20 1946. I believe that's when the concept was  
21 discovered. I could be wrong about that.

22 Q I was wrong actually too about my date.

1 That date is actually October 8th, 1945 is when the  
2 patent application for means for treating  
3 foodstuffs was filed by Mr. Spencer, who is  
4 credited for inventing the microwave oven. You  
5 first bought a microwave though in 1990; is that  
6 right?

7 A That or thereabouts.

8 Q When you used that microwave, did you  
9 ever burn anything in it?

10 A Probably.

11 Q Burn some popcorn once or twice?

12 A Likely.

13 Q When you burned that popcorn, did you  
14 throw the microwave away?

15 A No.

16 Q What did you do?

17 A My answer would be speculation.

18 Q Fair to say that because you didn't throw  
19 the microwave away, you cleaned it out and used it  
20 again, correct?

21 A Right.

22 Q And you repaired microwave ovens that you

1 or your friends own, correct?

2 A Right.

3 Q You even replaced the magnetron on those  
4 microwave ovens, correct?

5 A That's not what I said.

6 Q I thought you did. I apologize. Did you  
7 replace a magnetron on the microwave oven?

8 A I believe what I said is I assisted a  
9 technician in replacing the magnetron.

10 Q I see. So a technician came over from  
11 the appliance company, and you assisted them in  
12 replacing the magnetron; is that correct?

13 A That's correct.

14 MR. WONG: Objection, form.

15 BY MR. JOHNSON:

16 Q I'm sorry, sir, I missed your answer.

17 A That's right.

18 Q And I should have told you at the start,  
19 from time to time, your counsel's going to object,  
20 and unless your counsel tells you not to answer the  
21 question, I would ask that you answer the question.  
22 Same rule applies, there's only one set of hands on

1 the court reporter, so we're all going to try and  
2 not talk over each other, okay?

3 A Okay.

4 Q Okay. What do you mean by you assisted  
5 the technician?

6 A The microwave in question was very heavy,  
7 and the technician said he probably would be unable  
8 to take it out by himself, and he had to bring in a  
9 second technician, so I told him I would help him  
10 take it out, and then I asked him to explain his  
11 diagnoses, and he explained to me how to test for a  
12 magnetron being faulty, and he replaced the  
13 magnetron, and we put the microwave back together  
14 into the cabinet.

15 Q Do you recall when that was?

16 A I'm going to say about 15 years ago.

17 Q So about 2009ish; is that right?

18 A A little bit later than that.

19 Q How much later?

20 A 2011 or '12.

21 Q You're familiar with sensors in the  
22 electronics industry, correct?

1 MR. WONG: Objection, form.

2 A Which sensors are you talking about?

3 Q You know what a VOC sensor is, correct?

4 A Yes.

5 Q And do you know what a smoke sensor is?

6 A I know generally what a smoke sensor is.

7 Clearly what a smoke sensor is is a contentious  
8 term in this proceeding.

9 Q You know generally how fire alarms work,  
10 correct?

11 A What do you mean by fire alarm?

12 Q Do you have a fire alarm in your house,  
13 sir?

14 A Again, what do you mean by fire alarm?

15 Q Do you have something in your house that  
16 would warn you if a fire is about to burn it down?

17 A Yes.

18 Q What is that?

19 A We have a hard-wired smoke detector  
20 system.

21 Q When was the first time that you  
22 installed a smoke detector system in your home?

1           A     First time? In the 1990s, late 1990s I  
2 would say. Possibly earlier.

3           Q     So you've owned a microwave for going on  
4 34 years now, and in those 34 years, did you ever  
5 add a smoke sensor to your microwave?

6           A     Did I add a smoke sensor?

7           Q     Yes.

8           A     To the microwave.

9           Q     Yes.

10          A     That was an integral part of the  
11 microwave?

12          Q     Yes.

13          A     I did not.

14          Q     And in the 34 years that you've owned a  
15 microwave, you never reprogrammed the circuit board  
16 to add a reset feature if smoke was detected; is  
17 that correct?

18               MR. WONG: Objection, form.

19          A     That's right.

20          Q     In the 34 years that you've owned a  
21 microwave, you never added any power outlet to the  
22 front of the microwave; is that correct?

1           A     That's right.

2           Q     In the 34 years that you've owned a  
3 microwave, you never added a USB port to the front  
4 of the microwave, did you?

5           A     Just to be clear, doing any of this would  
6 void the warranty on the microwave, but no, I have  
7 not.

8           Q     In the 34 years that you owned a  
9 microwave, you never added any power management  
10 features to an outlet of the microwave, did you?

11          A     No.

12          Q     In the 34 years that you've owned a  
13 microwave, you never plugged a refrigerator into  
14 the back of it, did you?

15          A     No.

16          Q     Now you're testifying as an expert, and  
17 you're going to testify that Intirion's patents  
18 that cover these things have been obvious to a  
19 person of skill in the art though, correct?

20          A     That's right.

21          Q     And you consider yourself to be a person  
22 of skill in the art, right?

1           A     Yes.

2           Q     But you've never designed a microwave  
3 oven, correct?

4           A     Tell me what you mean by design a  
5 microwave oven.

6           Q     Sir, you're an engineer, correct?

7           A     That's right.

8           Q     Do you know what engineering design is?

9           A     Yes.

10          Q     What is engineering design to you, sir?

11          A     It's the application of engineering  
12 principles to meet a need or goal.

13          Q     And I'm going to use that in the context  
14 of a manufacturing process. Have you ever designed  
15 a microwave oven?

16          A     Just to be clear, I have designed on  
17 paper the basic cooking cavity of a microwave oven,  
18 but you're asking me did that design lead to a  
19 specific commercial product sold by a manufacturer,  
20 and the answer to the second part is no.

21          Q     What do you mean by a paper related to  
22 the cooking cavity of a microwave oven?

1           A     Well, see, I taught a course in applied  
2     electromagnetics for approximately eight years, and  
3     a component of that course was a unit on microwave  
4     energy, and part of the microwave component was the  
5     analysis of a three-dimensional cavity to determine  
6     if you were using that cavity for the cooking  
7     chamber of a microwave oven, where would the cold  
8     spots be, and that would be a standard exercise in  
9     a course on microwaves, and as part of that design  
10    process, one of the questions to be answered is how  
11    would you design the dimensions and protrusions  
12    inside the cavity to ensure that you have the  
13    maximum coverage possible.

14          Q     When did you first start teaching a class  
15    with that subject matter in it?

16          A     Sometime in the mid-1980s.

17          Q     And since the 1980s, have you ever  
18    included as part of your instruction in that class  
19    that one should include a smoke sensor connected to  
20    or close to the microwave oven cavity?

21          A     Well, that would be not related to the  
22    design exercise, which focused on the microwaves

1 themselves, and not safety aspects of a commercial  
2 product.

3 Q So that would be a no, correct?

4 A Can you repeat the question?

5 Q Sure. Since the 1980s, have you ever  
6 included as part of your instruction in that class  
7 that one should include a smoke sensor connected to  
8 or close to the microwave oven cavity?

9 A No.

10 Q And you have never worked in industry to  
11 design microwave oven, correct?

12 A I want to say I have worked in industry  
13 with regard to microwave chambers for industrial  
14 processes that are essentially microwave ovens.

15 Q In your work in industry, did you ever  
16 include a smoke sensor as part of that system for  
17 microwave ovens for industrial purposes?

18 MR. WONG: Objection, form.

19 A Possibly. I don't remember offhand.

20 Q You said possibly. Why would you say  
21 possibly?

22 A The job in question was the design of a

1 large industrial microwave oven for curing  
2 synthetic rubber, and as part of that installation,  
3 it's highly likely there was a smoke detector  
4 involved, but I don't recall offhand.

5 Q This was not a microwave oven for  
6 foodstuffs; is that correct?

7 A No.

8 Q Sorry, I need clarification on the no  
9 there. Is it correct that this was not a microwave  
10 oven for foodstuffs?

11 A This was -- what I was describing was not  
12 a microwave oven for foodstuffs.

13 Q Fair to say that you have never helped to  
14 design a refrigerator for commercial purposes.

15 A Define commercial purposes.

16 Q I'm going to use commercial again as  
17 you've defined commercial products, for use by a  
18 consumer in the home.

19 MR. WONG: Objection, form.

20 A I've not.

21 Q You've never worked with a company that  
22 makes consumer-purchasable refrigerators; is that

1 correct?

2 A I can't recall having done that.

3 Q Fair to say that you've never designed a  
4 combination microwave and refrigerator product?

5 A Have I designed one, no. Have I gained  
6 familiarity with them, yes.

7 Q Is that through this case, sir?

8 A No.

9 Q Where did you gain familiarity with  
10 combination microwave/refrigerator products?

11 A At Boston University.

12 Q Is that because combination microwave/  
13 refrigerator products are frequently used in the  
14 dorm rooms on university campuses?

15 A Among other places. I also had one in my  
16 laboratory.

17 Q On campus at Boston University, correct?

18 A Correct.

19 Q For the '745 and '746 patents, you've  
20 described a person of ordinary skill as someone who  
21 has at least a bachelor's degree in electrical  
22 engineering or computer engineering; is that

1 correct?

2 A Correct.

3 Q And you have at least a bachelor's degree  
4 in electrical engineering, correct?

5 A Yes.

6 Q In fact, you have a Ph.D. in electrical  
7 engineering; is that correct?

8 A Yes.

9 Q Did your Ph.D. have a focus, sir?

10 A Yes.

11 Q What was that?

12 A Applied electromagnetics.

13 Q Did you have to present a senior thesis?

14 A As a part of my undergraduate degree, I  
15 did.

16 Q Do you recall what that was on?

17 A Yes.

18 Q What was it?

19 A It was the design and implementation of a  
20 sensor.

21 Q What type of sensor?

22 A A sensor to detect the deposition of

1 copper vapor as part of a plasma arc process.

2 Q And for your Ph.D., did you have to do a  
3 research presentation of any kind?

4 A Yes.

5 Q Do you recall the subject matter of that?

6 A It would have been the subject matter of  
7 my dissertation.

8 Q Which was what?

9 A It was deposition processes for dust  
10 particulates in smoke on high-voltage DC  
11 insulators.

12 Q You're also a named inventor on several  
13 patents; is that correct, sir?

14 A Yes.

15 Q Did you write those patents yourself?

16 A No.

17 Q Did you read those patents before they  
18 were submitted to the Patent and Trademark Office?

19 A Yes.

20 Q Did you make sure that you understood  
21 those patents before they were submitted?

22 A Yes.

1           Q     Did you understand those patents when  
2 they were submitted to the Patent and Trademark  
3 Office?

4           A     Yes.

5                     (Deposition Exhibit Number 3 was marked  
6 for identification.)

7 BY MR. JOHNSON:

8           Q     Sir, I've handed you what has been marked  
9 as our Deposition Exhibit 3, which is a copy of  
10 U.S. patent number 5,455,507. You see that, sir?

11          A     Yes.

12          Q     Is this one of the patents on which you  
13 are the sole named inventor?

14          A     That's right.

15          Q     And this patent ends in a series of  
16 claims. You see that?

17          A     Yes.

18          Q     And the last element of claim 1 is  
19 element D. Do you see that, sir?

20          A     Yes.

21          Q     And you say, "Measuring of continuous  
22 current flow through the electrically conductive

1 mandrel." Do you see that portion --

2 A Yes.

3 Q -- of element D?

4 A Yes.

5 Q Did you understand what the word  
6 "continuous" meant when you submitted this patent?

7 A In the context of this patent, I did.

8 Q Your patent doesn't seem to have a  
9 definitions section; is that correct, sir?

10 A Let's say that term would be -- would  
11 have been understood by a person of skill in the  
12 art in the context of the patent.

13 Q And because it was understood by a person  
14 of skill in the art, you didn't need to provide a  
15 definition section in your patent, correct?

16 A Not for that particular use of the word  
17 "continuous," which has a very specific meaning in  
18 the context of this patent.

19 Q And what is the meaning of continuous  
20 that you're referring to in the context of this  
21 patent?

22 A Well, see, this patent is about detecting

1 pinhole leaks in barrier latex, and the method  
2 involved creating ions in the neighborhood of the  
3 test device and seeing if those ions went through  
4 the test membrane at any point. However, when the  
5 apparatus was turned on, it would always be a  
6 transient capacitive current, and so the meaning of  
7 continuous in claim element 1D means beyond the  
8 capacitive transient current that would inevitably  
9 occur when the unit was turned on.

10 Q And is that something a person of skill  
11 in the art would readily understand when they read  
12 this patent and read that term, "continuous"?

13 A And again, in the context of the claimed  
14 invention.

15 Q So is it your contention you provided  
16 some special definition for the word "continuous"  
17 here?

18 MR. WONG: Objection, form.

19 A So the explanation that I gave you  
20 previously from memory is articulated in detail in  
21 the specification of this patent --

22 Q Are you looking at --

1           A     -- including what is meant by continuous.

2           Q     Where are you looking in that patent,  
3     sir?

4           A     If you look at column 4, line 23, I'll  
5     read -- I'll read this section in part.  
6     "Initially, there will be a small transient current  
7     flowing through the manual" -- "mandrel,"  
8     M-A-R-D-R-E-L, "15. The reason for this is as  
9     follows. If the ions and the mandrel are  
10    considered equivalent to the plates of a capacitor,  
11    a transient current will flow for the time it takes  
12    to charge the capacitor." Then later on, starting  
13    in column 4 line 32, it says, "In addition to the  
14    transient current signal, if there are any holes or  
15    tears in condom C, ions will pass through to  
16    mandrel 15, producing as a result a continuous AC  
17    current flow through manual 15. This continuous AC  
18    current flow is detected and processed by circuit 9  
19    and then displayed on display 20."

20                So what is clearly described in this  
21    patent is the initial turning on of the ion  
22    generator, leading to a transient current in the

1 associated circuitry, and thereafter, if there's a  
2 hole or tear in the latex, current will keep  
3 flowing, and in the context of the patent, it's  
4 clear that as -- that by continuous, it means as  
5 long as the ion generator is turned on.

6 Q Sir, you've submitted two additional  
7 declarations for purposes of this post grant review  
8 proceeding -- these post grant review proceedings.  
9 You understand that?

10 A Two additional declarations? To which  
11 are you referring?

12 Q Let's get to that because that's my  
13 question too. So I'm going to hand you first what  
14 has been marked as Petitioner Exhibit 1023, and you  
15 can see on the cover of that, it's for post grant  
16 review, PGR2024-4 and PGR2024-3. Do you see that,  
17 sir?

18 A Yes.

19 Q There's also another one that we've been  
20 provided with. Sir, here's the other one. This  
21 one appears to -- I'm not sure if it's a draft of  
22 that document or not, but it has on the front cover

1 post grant review, PGR2024, I believe it says dash  
2 4, and then there's a dash blank. Do you see that,  
3 sir?

4 A Yes.

5 Q I'm just wondering, are they two separate  
6 declarations, or is one a draft of the other?

7 A Based on my sampling of several pages in  
8 these two documents, they appear to be the same  
9 with the exception of the cover page.

10 Q So do you know which declaration applies  
11 to which post grant review proceeding? And I guess  
12 let me go back to my prior question. Is one a  
13 draft of the other or are they independent  
14 declarations?

15 MR. WONG: Objection, form.

16 A They appear to be the same. I refer you  
17 to counsel as to why both were submitted, one with  
18 an incomplete cover page, specifically no number  
19 after the second PGR2024 designation on the cover  
20 page. Beyond that, I don't really have an answer  
21 for you. The substance of these reports -- well,  
22 these declarations in terms of the technical and

1 opinion content appear to be the same.

2 Q Was it your intent, sir, to file a single  
3 declaration for both of the post grant review  
4 proceedings?

5 A My understanding was that I was preparing  
6 a single report addressing the topics that seemed  
7 to be covered in -- identically in both these  
8 documents.

9 Q Okay, so I'm just trying to figure out a  
10 path forward with these today because they also  
11 have the same exhibit numbers. For purposes of  
12 today, I'm going to use Petitioner Exhibit 1023  
13 that includes both PGR numbers on it and does not  
14 have a blank as your declaration for post grant  
15 review purposes. If at any time you believe  
16 there's something in the other version of this  
17 declaration that you need to refer to to answer my  
18 questions, please let me know that you're doing so.  
19 Is that fair?

20 A Again, I defer you to counsel as to which  
21 of these documents is the intended official  
22 submission -- official filing, but from my

1 perspective, they appear to be the same document  
2 except for the cover page.

3 Q Okay. I'm going to ask you questions  
4 then with regard to the document that has the  
5 complete cover page. Do you understand that, sir?

6 A Yes.

7 MR. JOHNSON: Okay. We've been going for  
8 about an hour. Would you like to take a little  
9 break?

10 MR. WONG: Up to you.

11 MR. JOHNSON: Let's take about a  
12 five-minute break and just stretch our legs.

13 (Recessed at 10:04 a.m.)

14 (Reconvened at 10:17 a.m.)

15 BY MR. JOHNSON:

16 Q All right, back on the record. Sir, in  
17 front of you are a declaration with a complete  
18 listing of the PGRs as Petitioner Exhibit 1023, and  
19 I've already provided you with the thicker  
20 declaration from the IPRs, which was designated as  
21 1002. Do you see that, sir?

22 A Yes.

1           Q     Taken together, are those the complete  
2     declarations that you've submitted?

3           A     You have to clarify with respect to what.

4           Q     What don't you understand about that?  
5     You mean in the post grant review proceedings? Let  
6     me ask it this way. You haven't submitted or  
7     referred to any other declarations in the post  
8     grant review proceedings, correct.

9           A     There was one other declaration -- there  
10    were numerous declarations regarding claim  
11    construction, and there was another one regarding a  
12    surreply, and I don't know if it was part of the  
13    post grant review process or not.

14          Q     I think you're talking about District  
15    Court proceedings; is that correct, sir?

16          A     It's quite possible.

17          Q     But you're not -- those have not been  
18    filed with the Patent Trial and Appeal Board,  
19    correct?

20          A     I believe they have not.

21          Q     And so the declarations that are in front  
22    of you as Petitioner Exhibit 1002 and Petitioner

1 Exhibit 1023, are those complete and accurate as  
2 you sit here today?

3 A These two declarations are complete and  
4 accurate as they stand on themselves.

5 Q What do you mean, as they stand on  
6 themselves?

7 A Your question previously was have I  
8 submitted other declarations in this PGR matter.

9 Q Well, just answer my most recent  
10 question. The declarations that are in front of  
11 you as Petitioner Exhibits 1002 and 1023, are those  
12 complete and accurate as you sit here today?

13 A They are complete and accurate renditions  
14 of my declaration in support of petitions for inter  
15 partes review of U.S. patents '206, '374, '876, and  
16 my supplemental declaration in support of petitions  
17 for post grant review of U.S. patents '745 and  
18 '746.

19 Q You're not aware of any errors in these  
20 declarations, correct?

21 A Other than possible occasional obvious  
22 typos.

1 Q Like the date that we discussed earlier.

2 A Correct, I am not aware of any  
3 substantive errors or corrections in these reports.

4 Q I'd like you to look at Petitioner  
5 Exhibit 1023, sir. In particular, let's go to page  
6 18. Do you see there there's a heading "State of  
7 the Art"?

8 A Yes.

9 Q Underneath that, it says, "I understand  
10 that petitioner has asserted," and it lists out  
11 five different references. Do you see that, sir?

12 A Yes.

13 Q Were you involved in the search for those  
14 references?

15 A Not sure I understand your question.

16 Q What don't you understand about it, sir?

17 A Well, I could interpret it as there was  
18 an activity to search for prior art, and these  
19 references came out as a result and were chosen as  
20 focal points for this declaration, but in terms of  
21 any general search that may have identified other  
22 prior art that was not chosen to assemble the

1 grounds for invalidity, any additional references  
2 were not used in assembling these reports -- these  
3 declarations.

4 Q Were you involved in what you define as  
5 an activity to search for prior art from which  
6 these references came out?

7 A I did not identify these references. I  
8 recall identifying others that, upon discussion  
9 with counsel, we decided not to use as part of the  
10 declaration.

11 Q These references were provided to you by  
12 someone else, correct?

13 A That is correct.

14 Q Have you read through each of these  
15 references?

16 A Yes.

17 Q Did you do that before or after you read  
18 the '745 and '746 patents at issue in these post  
19 grant review proceedings?

20 A I honestly don't remember which came  
21 first, the reading of the '745 and '746 patents, or  
22 these references. Actually, if I could amend that

1 answer?

2 Q Sure.

3 A These same five references form the basis  
4 of Petitioner Exhibit 1002, for which I would have  
5 read those -- the five prior art references in  
6 their entirety, and Exhibit 1002 was filed in June  
7 2023, and Exhibit 1023 was filed in October 2023,  
8 so in formulating the Exhibit 1023 declaration, I  
9 would already have read those prior art -- prior  
10 art references.

11 Q And did you read the Intirion patents  
12 that were the subject of the inter partes review  
13 prior to reading the art that is listed on page 18  
14 of Exhibit 1023?

15 A Sorry, could you ask that question again?

16 Q Did you read the Intirion patents that  
17 were the subject of the inter partes review as  
18 listed on Petitioner Exhibit 1002 before you read  
19 the references that are listed on Petitioner  
20 Exhibit 1023 page 18?

21 A Are you referring to '206, '374 and '876  
22 --

1 Q Yes.

2 A -- patents?

3 Q Yes.

4 A I would have read those documents first.

5 Q Fair to say that neither of your  
6 declarations contain any opinions that any of the  
7 Intirion patents subject to the inter partes review  
8 or the post grant review proceedings are  
9 anticipated by any prior art reference?

10 MR. WONG: Objection, form.

11 A Could you read back his question or could  
12 you ask it again?

13 Q I'll just read it to you. Fair to say  
14 that neither of your declarations contain any  
15 opinions that any of the Intirion patents subject  
16 to the inter partes review or the post grant review  
17 proceedings are anticipated by any prior art  
18 reference?

19 A That is not true.

20 Q Why do you say that?

21 A Because in the Exhibit 1002 report, I  
22 have -- make several cases for anticipation

1 beginning with section -- well, beginning on page  
2 -- with paragraph 207.

3 Q I see. With regard to the patents that  
4 are listed as part of the inter partes review  
5 proceedings. Is that your testimony?

6 A Just to be clear, you're talking about  
7 the '206, '374 and '876 patents.

8 Q Yes.

9 A Those are the ones that you referred to  
10 as the inter partes review patents.

11 Q Yes. Is that correct?

12 A Yes.

13 Q Fair to say you make no anticipation  
14 arguments with regard to the patents that are  
15 subject to the post grant review proceeding, the  
16 '745 and '746 patents, correct?

17 A That's correct.

18 Q So with regard to the patents, the '745  
19 and '746 patents at issue in the post grant review  
20 proceedings, you agree there is not a single  
21 reference that discloses all of the elements of any  
22 single claim in those patents, correct?

1           A     I would agree that I only wrote about  
2 obviousness arguments involving one or more prior  
3 art references to the post grant review  
4 declaration.

5           Q     So you admit that the '745 and '746  
6 patent claims are novel, correct?

7                     MR. WONG: Objection, form.

8           A     Don't think that's what I said.

9           Q     Do you understand the difference between  
10 novelty and obviousness, or nonobviousness?

11          A     Tell me what you mean by novelty.

12          Q     I'm asking if you understand those  
13 concepts, sir. Do you have an understanding what  
14 novelty is?

15          A     If it refers to some specific legal term,  
16 I'm not sure I do understand it.

17          Q     Okay.

18          A     I understand novelty to mean a new  
19 invention in the context of patents in general.

20          Q     And you understand that based on your  
21 declaration of Petitioner Exhibit 1023, there's not  
22 a single piece of prior art that shows the

1 inventions claimed in the '745 and '746 patents,  
2 correct?

3 A Correct.

4 Q So absent a single reference, you had to  
5 combine references in various ways, correct?

6 A For the case -- in making the case for  
7 obviousness of the claims, I had to combine one or  
8 more prior art references.

9 Q So that's correct.

10 A My answer stands as my response.

11 Q So yes, you had to combine references in  
12 various ways to come up with all of the elements of  
13 any single claim in the '745 or '746 patents,  
14 correct?

15 A Correct.

16 Q Did you prepare any claim charts in this  
17 matter?

18 A I may or may not have. I don't recall.

19 Q Fair to say there are no claim charts  
20 included in your declaration of Petitioner Exhibit  
21 1023, correct?

22 A Right.

1           Q     Do you know what secondary indicia of  
2 nonobviousness are?

3           A     I believe so.

4           Q     What do you believe that to be?

5           A     I'm not sure I could provide you with the  
6 complete list. I could name some of them.

7           Q     What ones can you name?

8           A     Product success is one. That's the only  
9 one I remember precisely. Another one might be  
10 copying of the invention. Beyond that, I would be  
11 relying on my memory, so I will stop there, but I'm  
12 familiar with indicia of success as a general  
13 concept. I'm sorry, indicia of nonobviousness.

14          Q     Did you evaluate the commercial success  
15 of the Intirion products that are covered by the  
16 '745 and '746 patents?

17               MR. WONG: Objection, form.

18          A     No.

19          Q     Why not?

20               MR. WONG: Same objection.

21          A     I was not asked to do so.

22          Q     Did you evaluate whether or not there was

1 copying involved in this case related to the  
2 inventions covered by the '745 or '746 patents?

3 A Copying by whom?

4 Q My question stands, sir.

5 A I was not asked to make that evaluation  
6 either.

7 Q So regardless of who may have copied, you  
8 did not investigate whether or not any copying  
9 occurred, correct?

10 A That's correct.

11 Q What about failures of others? Did you  
12 evaluate whether or not there were any failures of  
13 others trying to make the inventions claimed in the  
14 '745 and '746 patents?

15 A The -- I did not do that analysis  
16 regarding the alleged inventions in the '745 and  
17 '746 patents.

18 Q Didn't watch any videos from College  
19 Products related to their efforts to make a product  
20 that would have been covered by the '745 or '746  
21 patents?

22 MR. WONG: Objection, form.

1           A     No.

2           Q     Didn't watch any videos from College  
3 Products about their efforts to test a smoke sensor  
4 in a microwave?

5           A     No.

6           Q     Did you consider any praise in the  
7 industry for the inventions that are covered by the  
8 '745 or '746 patents?

9           A     No.

10          Q     Is it fair to say you haven't discussed  
11 any of the products covered by the '745 or '746  
12 patents with any of the colleges or universities  
13 who require those products in their dorms?

14               MR. WONG: Objection, form.

15          A     I've not performed that analysis.

16          Q     You have not discussed any praise of the  
17 inventions covered by the '745 or '746 patents with  
18 any students at any colleges or universities who  
19 may use these products, correct?

20          A     Correct.

21          Q     Okay, so let's look at some of the art  
22 that you have reviewed that was provided to you,

1 correct?

2 A I'm not sure what you mean by provided to  
3 me.

4 Q Well, here's Petitioner Exhibit 1011. As  
5 we discussed earlier, this is not a patent that you  
6 discovered. This is one that was given to you by  
7 counsel, correct?

8 A No.

9 Q No? Why is that incorrect?

10 A It's not a patent.

11 Q I see. This patent application  
12 publication was given to you by counsel, correct?

13 A Correct.

14 Q Okay, and this is Petitioner Exhibit  
15 1011, which you refer to as Emma, correct?

16 A Yes.

17 Q And in Emma, you say there is motivation  
18 to combine Emma with other references because  
19 Emma's teaching would therefore have motivated a  
20 person of ordinary skill in the art to look to  
21 further microwave functionalities; is that right?

22 A I'm sorry, did you say to further

1 microwave functionalities?

2 Q That's right.

3 A Are you quoting my declaration?

4 Q I believe so.

5 A Can you refer me to that citation,  
6 quotation?

7 Q Sure, page 59 of your declaration.

8 A Which one? Which declaration?

9 Q I'm sorry, I'm referring to the one in  
10 the post grant review, Exhibit 1023, page 59, you  
11 say, "Emma's teaching would" --

12 A Wait. One moment.

13 Q Sorry. Page 59, sir.

14 A Okay.

15 Q Got it? Paragraph 106 right at the  
16 bottom, sir.

17 A Okay.

18 Q "Emma's teaching would therefore have  
19 motivated a POSITA to look to further microwave  
20 functionalities," comma, "including those in ISDU."  
21 Do you see where you said that, sir?

22 A Yes.

1 Q Why did you say that?

2 A The focus of Emma is on safety, and if  
3 you look at the sentence that precedes the one you  
4 quoted that says, "While Emma fails to recite a  
5 smoke sensor, Emma does disclose adding  
6 functionality to appliances" -- so there's the  
7 functionality word -- "by cycling power to a  
8 refrigerator and auxiliary electrical outlets for  
9 the purpose of improving the safety of the Emma  
10 appliance," parentheses, "preventing overload  
11 conditions." So in the sentence that you  
12 previously read where I talk about to further  
13 microwave functionalities, functionalities --  
14 functionalities refers to those that would involve  
15 improving safety of the microwave appliance. I'm  
16 sorry, the microwave/refrigerator combination  
17 appliance.

18 Q And you're using this general umbrella of  
19 safety as motivation for a person of skill in the  
20 art to look for other various features of microwave  
21 ovens, correct?

22 A With respect to the safety focus of Emma,

1 I looked to other pieces of prior art that also had  
2 a focal point of safety involving functionalities  
3 other than cycling power to prevent overload  
4 conditions.

5 Q And you understand Emma though is focused  
6 on the functionality of cycling power to prevent  
7 overload conditions, correct?

8 A Right.

9 Q And Emma states that the microwave is of  
10 standard design with features commonly available,  
11 correct?

12 A Does it say that in Emma? If so, can you  
13 point me to it?

14 Q Sure, it's in the publication paragraph  
15 26. It's page 13 of Petitioner Exhibit 1011. At  
16 the bottom of that paragraph, it reads, "The  
17 appliances may be of standard design with features  
18 commonly available. The internal components of the  
19 appliances are well known and do not need to be  
20 described here." Correct?

21 MR. WONG: Objection, form.

22 A It's correct that you have correctly

1     quoted that portion of the paragraph. I'm not done  
2     reading the complete paragraph, however. So if you  
3     could just repeat your question you wish me to  
4     answer?

5           Q     Well, I guess my question is this.  
6     There's no citation for your statement that Emma's  
7     teaching would therefore have motivated a POSITA to  
8     look further -- look to further microwave  
9     functionalities, and Emma itself says that the  
10    internal components of appliances are well known  
11    and do not need to be described herein. Where do  
12    you find motivation in Emma to improve the internal  
13    components of an appliance?

14           MR. WONG: Objection to form.

15           A     You're citing paragraph 26, which is  
16    about the second half of the paragraph preceding  
17    the line you read talks about the dimensionality of  
18    the refrigerator and the microwave and their  
19    weights. Starting about the middle of that  
20    paragraph, refrigerators, the heaviest component,  
21    it's used as the base with the microwave on top,  
22    paraphrasing the sentence. And second sentence

1 talks about it being advantageous in one embodiment  
2 for the height of the refrigerator to be no more  
3 than 48 inches above the floor.

4 I'll point out that's a mini-fridge in  
5 the refrigerator industry. This provides a more  
6 ergonomic operation of the microwave for the user,  
7 and it goes on, the stacked position of the  
8 appliances -- in the stacked position of the  
9 appliances, the doors 9 and 10 of the microwave and  
10 refrigerator should be arranged in a common plane,  
11 and the sentence, "The appliances may be of  
12 standard design with features commonly available"  
13 is referring in my opinion to the dimensionalities  
14 and the stacking and the alignment of the doors  
15 that precede that sentence, and then the sentence  
16 says the internal components of the appliances are  
17 well known and don't need to be described in the  
18 context of stacking the microwave on top of the  
19 refrigerator and aligning them.

20 You know, if you look at all the other  
21 paragraphs in the patent, they are about ensuring  
22 that an electrical overload doesn't take place in

1 the pair of appliances, so --

2 Q My question stands, sir. Why do you find  
3 motivation in Emma to continuously improve the  
4 internal components of the microwave?

5 MR. WONG: Objection, form.

6 A Again, Emma is all about safety. The  
7 paragraph you've chosen is about how to put the  
8 microwave on top of the fridge and line up the  
9 doors, but the rest of the -- the rest of the  
10 application is about guaranteeing that there will  
11 not be an overload, which is a safety condition.

12 Q You agree that Emma doesn't disclose  
13 anything about a smoke sensor in a microwave,  
14 correct?

15 A That's correct.

16 Q It doesn't mention anything about food  
17 burning, correct?

18 A No.

19 Q No, I'm not correct?

20 A It does not mention anything about food  
21 burning.

22 Q Okay. There's no mention in Emma of

1 wanting to prevent any fires in the microwave  
2 cavity, correct?

3 A No fires in the microwave cooking cavity,  
4 doesn't discuss that.

5 Q In fact, the word "smoke" never appears  
6 in Emma, right?

7 A That's right.

8 Q And you provide no citations anywhere in  
9 paragraph 106 of your report where you suggest  
10 there's motivation to combine Emma with ISDU,  
11 correct?

12 A I think I make the case in this paragraph  
13 -- I'll read the last two sentences, or paraphrase  
14 them. Emma fails to recite a smoke sensor, agreed.  
15 Emma does disclose adding functionality by cycling  
16 power to a refrigerator and auxiliary electrical  
17 outlets for the purpose of improving the safety of  
18 the Emma appliances, namely, providing overload  
19 conditions. The phrase "overload conditions" is  
20 found several times in Emma, so someone designing a  
21 microwave would have been motivated to look for  
22 other safety functionalities, such as one disclosed

1 in ISDU.

2 Q But that's my point. You make the case.  
3 That case is not made explicitly in Emma because  
4 you provide no citation for it in Emma, correct?

5 A Tell me what you mean by citation for it.

6 Q You know what a citation is. You're an  
7 expert witness and a professor.

8 A You're asking me to find a citation that  
9 says please -- that Emma would say please combine  
10 me with other things that I'm not talking about?  
11 It seems to be what you're asking.

12 Q I'm asking if you can provide a citation  
13 for anywhere in Emma where it says that a person of  
14 skill in the art should look to forward microwave  
15 functionalities generally.

16 A I'm sorry. My understanding is it's the  
17 job of the person skilled in the art to look at  
18 Emma and do the forward thinking. It's not up to  
19 Emma to do the forward thinking in anticipation  
20 that a person skilled in the art would want to add  
21 other features to the claimed invention.

22 Q So you agree with me that Emma does not

1 provide that, correct?

2 MR. WONG: Objection, form.

3 A I don't agree with that per se. I agree  
4 that the one sentence you have read just says oh,  
5 the functionalities are known. How will it read?  
6 That's the sentence you've quoted from Emma does  
7 say.

8 Q Can we at least agree that your paragraph  
9 106 provides no citation to any motivation in Emma?

10 MR. WONG: Objection, form.

11 A I don't provide a citation by paragraph  
12 number, but I do point out in paragraph 106 of my  
13 declaration that Emma does disclose adding  
14 functionality to appliances by cycling power to a  
15 refrigerator and auxiliary electrical outlets to  
16 prevent overload conditions.

17 Q And is it your opinion that referencing  
18 power cycling functions motivates a person of skill  
19 in the art to also look to add smoke sensors?

20 A Oh, yes.

21 Q Why?

22 A Because a person skilled in the art

1 seeking to improve the safety of microwave ovens  
2 would be aware that fires in the cooking chamber  
3 are another problem, particularly in college  
4 dormitories, because there are numerous instances  
5 of these combination units creating fires in  
6 dormitories. In addition to these dormitory units  
7 blowing circuit -- tripping circuit breakers in the  
8 dorm, the fact that they're prone to cause fires is  
9 also of concern, so a person of skill in the art  
10 designing and building these combo devices would  
11 look to Emma and see that the power cycling avoids  
12 the tripping of circuit breakers, and then with  
13 knowledge of the fire problem in these units, seek  
14 to find other prior art references that talk about  
15 how you implement a smoke detector in a microwave.

16 Q Even though Emma never mentions smoke or  
17 fire in a microwave cavity, correct?

18 A It is correct Emma never mentions smoke  
19 in the Emma application.

20 Q That wasn't my complete question though.  
21 It also never mentions a fire occurring in the  
22 microwave cavity, correct?

1           A     I would say that smoke and fire go  
2 together. We all know the saying where there's  
3 smoke, there's fire.

4           Q     So again, my statement is correct that  
5 Emma never mentions problems with fires in the  
6 microwave cooking cavity, correct?

7           A     That is correct to the best of my  
8 recollection, neither the '745 or '746 patents  
9 reference fire. They reference smoke a lot and  
10 combustion, and I don't recall seeing the word  
11 "fire" in those patents. I could be wrong.

12          Q     My question never mentioned the '745 or  
13 '746 patents. I just asked about Emma. Fair to  
14 say that Emma does not mention fires in microwave  
15 cooking cavities?

16          A     That's right.

17          Q     Fair to say that Emma never mentions  
18 including any type of gas sensor in a microwave  
19 cooking cavity?

20          A     By gas sensor, do you mean smoke sensor?

21          Q     Do you know what a gas sensor is?

22          A     My opinion, it's a smoke sensor.

1           Q     Okay. Is there a gas sensor mentioned in  
2 Emma anywhere?

3           A     No.

4           Q     You said gas sensors are smoke sensors,  
5 correct?

6           A     No, you did.

7           Q     No. I said -- I said do you know what a  
8 gas sensor is, and you said my opinion, it's a  
9 smoke sensor. I'm reading it off the transcript.

10          A     Okay.

11          Q     So is it your opinion that all gas  
12 sensors are smoke sensors?

13          A     Well, it would depend on the type of gas  
14 I suppose.

15          Q     So it's your opinion that not all gas  
16 sensors are smoke sensors.

17          A     Gas sensors that detect volatile organic  
18 compounds would be smoke sensors.

19          Q     Are all VOC sensors smoke sensors?

20          A     Well, the answer to your question is the  
21 inverse. VOC sensors detect VOCs. Smoke always  
22 includes VOCs as part of the components of the

1 smoke.

2 Q So some VOC sensors are not smoke  
3 sensors.

4 A Not what I said.

5 Q That's my question.

6 A What I said was a VOC sensor will detect  
7 VOCs. Now, if the sensor is in a region where  
8 there is smoke, then smoke will always contain  
9 VOCs, so the VOC sensor will detect the smoke.

10 Q Are some VOC sensors not smoke sensors?

11 A That's not accurate.

12 Q Every VOC sensor in your opinion is a  
13 smoke sensor.

14 A Your question doesn't make sense to me.

15 Q The inverse -- you said my first one  
16 wasn't accurate. My second one is the opposite.  
17 You said -- is every VOC sensor a smoke sensor?

18 A Okay, I believe what I've explained, and  
19 let me reiterate it, a VOC sensor is capable of  
20 detecting smoke. VOCs can be produced by other  
21 mechanisms that are not related to smoke and  
22 combustion, and VOC sensors can be used for that

1 purpose, but if you put a VOC sensor in a region  
2 where there is smoke, it will detect the smoke.

3 Q So some VOC sensors can be specific to  
4 certain VOCs.

5 MR. WONG: Objection, form.

6 BY MR. JOHNSON:

7 Q Correct?

8 A Not sure I understand your question.

9 Q It's a sensor for a chemical, correct?  
10 That's what a VOC sensor is, right?

11 A Well, it senses a volatile organic  
12 compound.

13 Q Okay. Is it true that VOCs are produced  
14 by things besides smoke?

15 A That is true.

16 Q So you can have VOC sensors that are used  
17 for things other than to detect smoke.

18 A Well, let me say if you used a VOC sensor  
19 in a place where you're trying to detect fire --  
20 sorry, detect smoke leading to a fire, it will  
21 detect that smoke in the same way that a smoke  
22 detector will detect things besides smoke.

1           Q     Let me ask my question again. So you can  
2 have VOC sensors that are used to detect things  
3 other than smoke.

4           A     I said yes, in the same way that a smoke  
5 detector can detect things other than smoke.

6           Q     All right, let's look at another  
7 reference. Here you go. Sir, I've handed you what  
8 has been marked as Petitioner Exhibit 1012. Do you  
9 see that, sir?

10          A     Yes.

11          Q     And this is something that has a title,  
12 "IRis Northeastern University" at the top. Do you  
13 see that?

14          A     That is not the title of the document.

15          Q     Right. Those are the words that appear  
16 at the top of the document, correct?

17          A     Yes, but they're not the title of the  
18 document.

19          Q     I understand, sir. You believe this  
20 document was publicly available April 17 of 2007,  
21 correct?

22          A     It's my understanding that the document

1 was made public by being hosted on the IRis system  
2 in the neighborhood of 2007.

3 Q What do you mean, in the neighborhood of  
4 2007?

5 A Well, see, this document is a design  
6 review produced by students in a design course, and  
7 they have placed the date April 17th, 2007 as the  
8 date it would have been handed to the professor,  
9 and then after review of the document, it would  
10 have been transferred to IRis, but certainly within  
11 a relatively short time such that it would precede  
12 any other dates in question, for example, 2014.

13 Q What's your basis for your statement that  
14 it would have been handed to the professor, and  
15 then after review of the document, it would have  
16 been transferred to IRis?

17 A What's my basis for that statement?

18 Q Yes.

19 A Because what I've described is a process  
20 that I myself went through many times in the course  
21 of being a professor.

22 Q Have you been a professor at Northeastern

1 University?

2 A Well, I was a professor at Boston  
3 University and an undergraduate and graduate  
4 student at MIT who have similar systems.

5 Q Right.

6 A And so -- into.

7 Q My question was about Northeastern  
8 University, sir. Have you been a professor at  
9 Northeastern University?

10 A Let's say that my daughter was a doctoral  
11 student at Northeastern, so I'm familiar with their  
12 process. I have not been a professor at  
13 Northeastern, no.

14 Q Let's answer my questions today. Have  
15 you ever been a student at Northeastern University?

16 A No.

17 Q And yet, you say that this paper in  
18 Petitioner Exhibit 1012 would have been transferred  
19 to IRis at Northeastern University in a relatively  
20 short period of time. What's your basis for that  
21 statement?

22 A You have to understand what IRis is at

1 Northeastern as well as similar systems at other  
2 schools. They replace submission of things like  
3 theses to the library in paper form. Now, this  
4 capstone project starting around 1990 became a  
5 requirement for the accreditation board for  
6 engineering and technology that all engineering  
7 students complete a capstone project in lieu of an  
8 undergraduate thesis. So this document has the  
9 same status as a thesis, and thesis -- theses are  
10 submitted to the university's library always.

11 So the IRis system at Northeastern, my  
12 understanding of it by reading a description of  
13 IRis, is that it replaced library submission for  
14 theses in capstone projects, and being familiar  
15 with that project at Boston University, where I  
16 worked, and at Northeastern University, where my  
17 daughter submitted her thesis, that leads me to the  
18 conclusion that within a relatively short time, on  
19 the order of weeks, the document would have been  
20 made available to the public.

21 Q So you're guessing, right?

22 A I'm not guessing.

1 Q Yes, you are.

2 A I understand the system. You're asking  
3 me if I -- I'm not sure what you asked me.

4 Q Well, I'm asking for the basis for your  
5 statement that in your declaration, Petitioner  
6 Exhibit 1002, page 51, where you say, "ISU,  
7 integrated smoke detector unit for commercial  
8 microwave ovens" --

9 A Excuse me. I'm not caught up to you yet.  
10 1002, page 51?

11 Q Fifty-one and 52.

12 A Okay.

13 Q And you say, "ISDU," colon, "integrated  
14 smoke detector unit for commercial microwave ovens,  
15 Cory Lloyd et al., Northeastern University, which  
16 was published on April 17, 2007." Are you telling  
17 me now that that statement is false?

18 A Not really. When I say it was published,  
19 that means it was submitted on April 17th, and  
20 that's what ISDU indicates as the date of  
21 publications, that that's what the students put on  
22 it. Then it was put into the IRis digital

1 repository, and obviously IRis takes some time to  
2 catalog and post documents of this type.

3 Q So as you sit here today, you do not know  
4 a date when the ISDU reference was publicly  
5 available, correct?

6 MR. WONG: Objection, form.

7 A I believe I stated an approximate date,  
8 would be shortly thereafter the April 17th, 2007  
9 date.

10 Q Where's that statement in your  
11 declaration, sir, or did you just make it up today?  
12 I'll wait. You can review your declarations and  
13 find it for me please.

14 A You are correct that I indicate the  
15 published date, and it says on page 52 ISDU  
16 indicates that date of publication is April 17th,  
17 and that on its face, it was published on IRis. So  
18 I don't say that April 17th was the exact date it  
19 was available to the public, but then I have a  
20 whole rest of that paragraph that describes what  
21 IRis is and that how everything submitted to IRis  
22 became available to the public. So April 17th is

1 the date it was submitted to IRis. If you're  
2 asking me on what date IRis opened up the gates to  
3 make it available to everyone, as I explain in the  
4 rest of paragraph 96, it would involve a process,  
5 and not -- not -- I'm not specific about how long  
6 that process would have taken.

7 Q So you have no opinion on when the ISDU  
8 reference was publicly available that's expressed  
9 in your declarations, correct?

10 A That's not true.

11 MR. WONG: Objection to form.

12 A That's not true.

13 Q What date was the ISDU reference publicly  
14 available as expressed in your declaration, sir?

15 A Look at paragraph 98 please. Given all  
16 of the above, it's my opinion that ISDU was a  
17 printed publication or otherwise available to the  
18 public before the effective filing date of April  
19 25th, 2014, and it's thus prior art to the  
20 challenged patents.

21 Q Do you have a specific date on which the  
22 ISDU reference was made publicly available in your

1 declaration, sir?

2 A As I said before, the April 17th date  
3 began the process of the document becoming public.

4 Q Began the process. So again, my question  
5 is do you have a specific date on which the ISDU  
6 reference was made publicly available in your  
7 declarations, sir?

8 A Well, I'll stand by the April 17th, 2007  
9 date.

10 Q Okay. If you read the reference in  
11 Petitioner's Exhibit 1012, we know that date is not  
12 the date that it was published, correct?

13 A You've got to define published to me.

14 Q Why? You've used that term several  
15 times. Do you not understand what publication  
16 means?

17 A Yes, I do. It's -- it's a term in  
18 academia, and I've written five textbooks, and the  
19 publication date listed on the front page is the  
20 dated I submitted it to the publisher. When did it  
21 reach the bookstores? I'm not sure, but it was  
22 published on the date -- it began the publication

1 process when I submitted it.

2 Q So if the library's the publisher here,  
3 you believe that this paper that you've submitted  
4 as Petitioner Exhibit 1012 was submitted to the  
5 library on April 17, 2007, correct?

6 A Yes.

7 Q And we know that's false by looking at  
8 this document, correct?

9 MR. WONG: Objection, form.

10 A Please tell me why that's false.

11 Q Did you read this document in its  
12 entirety?

13 A Yes.

14 Q Did you read appendix 2 that includes a  
15 Gantt chart?

16 A Appendix 2. I'm seeing the Gantt chart.

17 Q In appendix 2, correct?

18 A Yes.

19 Q And you're seeing a finished date in  
20 appendix 2 of April 20, 2007, three days after the  
21 date on the cover, correct?

22 A No.

1           Q     No?

2           A     It is correct that the date you cite is  
3     April 20th, 2007, but the Gantt chart is about the  
4     engineering tasks, and the last item, number 6, is  
5     testing, which means physical testing of the  
6     system. ISDU is a design review, meaning it's a --  
7     it's a description of what the students intend to  
8     do to build and test the device. It's not -- this  
9     Gantt chart doesn't say published. It says that  
10    they were still working on it and finished their  
11    testing on April 20th. It doesn't say that's when  
12    the document was completed.

13          Q     Do the students talk about their testing  
14    in this document?

15          A     There is some discussion of testing.  
16    It's in section 6 on page 25.

17          Q     They have problems, correct, with noise  
18    being emanated during the microwave process.

19          A     No.

20          Q     Even though this same sentence begins  
21    with, "One problem we anticipated," is it your  
22    testimony that they didn't have problems?

1           A     No. If you anticipate a problem and then  
2     talk about how it was solved, it doesn't mean you  
3     have that problem. It means you avoided that  
4     problem. If you look at the first sentence of the  
5     next paragraph, the interference for the magnetron  
6     was not an issue during steady-state operation.  
7     Only during transients. So the fact that the word  
8     "problem" appears on the first sentence of section  
9     6 doesn't mean they couldn't get it to work.

10          Q     In fact, they go on to say the biggest --  
11     the bigger problem lied in transients, correct?

12          A     Excuse me. Yes.

13          Q     And in fact, they conclude their  
14     paragraph with the sentence that says, "This  
15     resulted in an increased line resistance, which in  
16     turn periodically disabled our reset function." Do  
17     you see that?

18          A     I'm sorry, where are you reading?

19          Q     The next page, towards the bottom of the  
20     first partial paragraph.

21          A     I'm not seeing the sentence you're asking  
22     me about.

1           Q     It's right above 7.  There's two -- it's  
2     the third sentence above that.  "This resulted in  
3     an increased line resistance, which in turn  
4     periodically disabled our reset function."  You see  
5     that?  Do you see that, sir?

6           A     Well, the last sentence kind of  
7     summarizes it all.

8           Q     I'm asking if you've found the sentence  
9     that --

10          A     I see the sentence.

11          Q     Okay, and I read it accurately, correct?

12          A     Yes, you did.

13          Q     Okay, and sir, this reference to ISDU,  
14     this is not a reference that you found, correct?

15          A     That's correct.

16          Q     It's a reference that was given to you,  
17     correct?

18          A     When you say that I found, the name of  
19     the reference was given to me.  I found it myself  
20     on what's now the successor to IRis.

21          Q     And that's DRS; is that correct?

22          A     I believe that's correct.

1           Q     Sorry, at the bottom of that paragraph  
2     that we were just looking at, the students do say  
3     that further investigation must be done to  
4     ascertain the exact source of the line noise,  
5     correct?

6           A     Right.

7           Q     That's what they say. And this reference  
8     that you later pulled from the DRS system, sir,  
9     fair to say you did that while you were engaged as  
10    an expert in this matter?

11          A     That's right.

12          Q     So you didn't do it in 2007, correct?

13          A     I did not go to the internet in 2007 and  
14    find the reference.

15          Q     And you didn't speak with anyone at  
16    Northeastern University about finding this  
17    reference, did you?

18          A     Speak with someone at Northeastern? I  
19    didn't do that.

20          Q     Okay. Did you -- do you know when this  
21    copy of this reference was actually printed?

22               MR. WONG: Objection, form.

1           A     The piece of paper I'm holding?

2           Q     This is a copy of documents that have  
3     been submitted as exhibits in this case.  You  
4     understand that, right?

5           A     Right.

6           Q     The document that was submitted as an  
7     exhibit, do you know when that was actually  
8     printed?

9           A     You mean converted from digital form to  
10    printed form so that it could be submitted as an  
11    exhibit?

12          Q     Yes.

13          A     Do I know when the attorneys did that?

14          Q     Yes.

15          A     I don't.

16          Q     Fair to say it was probably during this  
17    case, right?

18          A     If -- if this design review -- if this  
19    design review was used as a prior art reference, it  
20    clearly would have been submitted as an exhibit in  
21    the course of this case.

22          Q     And what year did you first see this

1 document, sir?

2 A 2003 -- I'm sorry, 2023.

3 Q 2023.

4 A Right.

5 Q Do you know when the digital repository  
6 service, DRS, replaced IRis at Northeastern  
7 University?

8 A Could you repeat your question?

9 Q Do you know when DRS replaced IRis at  
10 Northeastern University?

11 A I don't know the exact date, no.

12 Q Fair to say it was put in place well  
13 after IRis, correct?

14 MR. WONG: Objection, form.

15 A Not sure what you mean by well after.

16 Q You understand DRS replaced IRis,  
17 correct?

18 A Yes.

19 Q And as you sit here today, you're not  
20 aware of anyone who actually downloaded this  
21 document before April -- or I'm sorry, before 2014,  
22 correct?

1           A     Well, I have no idea who may or may not  
2     have downloaded it. Are you done tag-teaming me?  
3     Repeat your question again.

4           Q     We work together, sir. It's okay.

5           A     I know, I know.

6           Q     As you sit here today, you're not aware  
7     of anyone who actually downloaded this document  
8     from IRis or DRS before 2014, correct?

9           A     The question is was it publicly  
10    available, and I don't know how I could have  
11    knowledge of who had downloaded it, but was it  
12    publicly available, could someone have downloaded  
13    it, yes, that's my opinion. I don't know if anyone  
14    did download it or not, to specifically answer your  
15    question.

16          Q     That's what I'm after. With regard to my  
17    question, as you sit here today, you're not aware  
18    of anyone actually downloading this paper from  
19    either IRis or DRS prior to 2014, correct?

20          A     I don't know how I would be aware of  
21    that.

22          Q     Is that correct though that you're not

1     aware of it?

2             A     That's right.

3             Q     And sir, this document that was submitted  
4     as Petitioner Exhibit 1012 contains a citation to  
5     the DRS link, so it's fair to say that this is not  
6     the document that appeared on IRis.

7             A     Can you show me that?

8             Q     Yes. In fact, it's under the recommended  
9     citation that <http://hdl.handle.net/2047/d20000833>  
10    is a link to the DRS system, sir.

11            A     Okay. Not sure I see your point.

12            Q     My point is you couldn't include a link  
13    to a DRS system that didn't exist until it replaced  
14    IRis on the IRis version on this document, correct?

15            A     No, no, no, no, no. That footnote was  
16    likely added by -- when it went into the library.

17            Q     But this is not the document that was on  
18    IRis because it includes a DRS link.

19            A     That makes no sense. I don't believe  
20    that's true.

21            Q     So how did the DRS link appear on a  
22    document that would have been found in 2007 on

1 IRis?

2 A As I say, the recommended citation is  
3 something that would have been added after the  
4 conversion to DRS, and we're not sure when that  
5 was.

6 Q So it's fair to say that this document  
7 that was submitted as Petitioner Exhibit 1012 was  
8 obtained after the conversion to DRS.

9 A The document that was submitted as the  
10 exhibit by petitioner was of course obtained when  
11 the system had converted to DRS because that is the  
12 system that's available now.

13 Q Do you know the differences between DRS  
14 and IRis?

15 A I'm not sure.

16 Q Is it fair to say you didn't consider  
17 those -- any differences between DRS and IRis in  
18 your opinions?

19 A My understanding is that cataloging  
20 systems change as technology changes, and for  
21 example, in 2007, computer technology was much less  
22 sophisticated than it is today, so I'm not

1 surprised that the system changed from something  
2 called ISDU to something more modern called DRS.

3 Q You understand -- I still need an answer  
4 to my question. Is it fair to say you didn't  
5 consider any differences between DRS and IRis in  
6 your opinions?

7 A I did consider the differences between  
8 them, but none of them pertained to the public  
9 availability of the document.

10 Q So you didn't discuss any of those  
11 differences in your opinions, correct?

12 A Correct.

13 Q And you never had any discussions with  
14 anyone at Northeastern University about the  
15 conversion from IRis to DRS, correct?

16 A That's right.

17 Q And you said you considered some  
18 differences though. What differences did you  
19 consider?

20 A Differences between IRis and DRS? Is  
21 that what your question is?

22 Q I believe that's the differences you were

1 referring to, sir, yes.

2 A Differences I was referring to? I think  
3 I just said there would be an improvement in  
4 technology between 2007 and the implementation of  
5 DRS. I think that's what I said.

6 Q Do you have an understanding about how  
7 IRis works at Northeastern University?

8 A I do.

9 Q How did you gain that understanding about  
10 how IRis works at Northeastern University?

11 A Because it's the same as similar systems  
12 at any university in the country at the time.

13 Q Did you compare the system at  
14 Northeastern University with the system at Boston  
15 University?

16 A The IRis system?

17 Q Yes.

18 A No, I didn't have access to the IRis  
19 system. Just the DRS system.

20 Q So you had no access to the IRis system  
21 at Northeastern University, correct?

22 A Well, your question's misleading. Let's

1 make a distinction between the document and the  
2 system hosting it. So you're asking me if I looked  
3 at the difference between a more primitive system  
4 that was hosting it and a more advanced one, and  
5 the likely switch happened when the switch was made  
6 from local servers to cloud-based servers, okay?  
7 So when IRis was first made, it would have been  
8 hosted on a Northeastern computer. DRS --

9 Q That's a guess on your part, sir.

10 A Well, that's the path of technology, sir.

11 Q But have you ever reviewed or even used  
12 the IRis system at Northeastern University?

13 A Well, like I said, I wouldn't have had  
14 access to the original IRis system.

15 Q At Northeastern University.

16 A Right.

17 Q And you've never used the IRis system at  
18 Northeastern University, correct?

19 A As I say, I've used similar systems at  
20 other universities.

21 Q Focusing on the one --

22 A You are correct, I have not used IRis at

1 Northeastern, that's correct.

2 Q And you've never spoken to anyone who has  
3 operated the IRis system and worked for  
4 Northeastern University.

5 A No, that's correct.

6 Q You understand that -- are there any  
7 differences in the ability for someone to access  
8 documents from IRis versus DRS?

9 A Any ability of a user to access? What do  
10 you mean by ability to access?

11 Q Do you understand that IRis has the  
12 ability to designate documents as private?

13 A Well, based on the description of what  
14 IRis is and the fact that universities are required  
15 to publish all theses, that's the nature of the  
16 university. They're not allowed to make theses  
17 private, and if IRis was allowed to make some  
18 documents private and you're just telling me that,  
19 you haven't given me a citation that says that's  
20 true, a report of this type would just -- the same  
21 as a senior thesis, would have been public.

22 Q Again, I'm asking you, do you know

1       whether IRis has the ability to designate things as  
2       private, yes or no?

3           A       I don't know. It would be very unusual  
4       and against the whole concept of having IRis.

5           Q       I appreciate the commentary, sir.

6           A       I want it on the record the ability to  
7       make things private.

8           Q       You understand that IRis has community  
9       and collections policies.

10          A       Okay, yeah.

11          Q       Do you understand that a community could  
12       be a department, such as the electrical and  
13       computer engineering undergraduate capstone  
14       projects?

15          A       Yes.

16          Q       And do you understand that IRis has the  
17       ability to make communities private?

18          A       From where are you getting that  
19       information?

20          Q       I'm asking if you have an understanding  
21       of that one way or the other.

22          A       I'm not aware of that restriction.

1           Q     You're not aware one way or the other if  
2     the restriction could be placed or could not be  
3     placed, correct?

4           A     Computer technology wise, it would be  
5     possible, but it's antithetical to the purpose of  
6     having IRis, so --

7           Q     Did you review the IRis community and  
8     collections policies in preparation of any of the  
9     declarations that you've submitted in -- to the  
10    Patent Trial and Appeal Board?

11          A     So I'm referring you to appendix D, part  
12    of Exhibit 1002, which is a detailed description of  
13    the proposal to create IRis. It's dated November  
14    18th, 2005.

15          Q     Uh-huh.

16          A     And in this document, it describes how  
17    the purpose of the system is to make the  
18    intellectual output of the university available to  
19    the world through a consortium of similar systems  
20    worldwide that will collaborate with each other.

21          Q     And you would agree that it also allows  
22    for professors to keep certain materials

1 confidential.

2 A I did not see a reference to that in the  
3 slide presentation.

4 Q You must have missed it on page 260 where  
5 it says, "Confidential data can be kept  
6 confidential. Permission required."

7 A Sorry, 260?

8 Q Yeah.

9 A That refers to data, not a publication.

10 Q Well, you're assuming that this is a  
11 publication, correct?

12 MR. WONG: Objection, form.

13 A Data are data, not a publication. Other  
14 forms of confidential data would be the salary  
15 information that's included in all government  
16 grants, and that would clearly be something to be  
17 kept confidential.

18 Q Would you agree that one of the  
19 responsibilities of the library was to limit access  
20 to content according to community requests?

21 A Well, I think the overriding mission of  
22 IRis, which supersedes and lies on top of what you

1 just mentioned about limiting information, is the  
2 whole purpose, to share the intellectual property  
3 of the university with the wider world, and I can  
4 point you to numerous references to that objective  
5 in this document, particularly with regard to  
6 academic output.

7 Q I want to go back to my question again,  
8 sir. Would you agree that one of the  
9 responsibilities of the library was to limit access  
10 to content according to community requests?

11 A I believe that is discussed in this -- in  
12 this document, this PowerPoint presentation.

13 Q What's your answer to my question?

14 A Yes, to the extent you're cherry-picking  
15 that feature of IRis, it is in there, yeah.

16 Q It is a feature, correct? Right?

17 A Yeah, but it would never be applied to a  
18 senior thesis.

19 Q That's your opinion, correct?

20 A No, that's not my knowledge of what  
21 senior theses are.

22 Q At Boston University, correct?

1           A     Anywhere. You don't publish a thesis  
2     that is private. The definition of thesis is that  
3     it's public.

4           Q     Do you have anyone from Northeastern who  
5     has confirmed that for you?

6           A     Confirmed --

7                     MR. WONG: Objection, form.

8           A     Confirmed what?

9           Q     Your statement that you don't publish a  
10    thesis here that is private?

11          A     Everybody in academia knows that,  
12    everybody.

13          Q     You've never spoken with anyone at  
14    Northeastern University who has confirmed that,  
15    correct?

16          A     That's a ridiculous question, and I'm not  
17    going to answer it. I've said --

18          Q     I'm sorry.

19          A     -- everyone in every university  
20    everywhere --

21          Q     Sir --

22          A     It's professorship 101.

1 Q It's a different --

2 A Yeah, yeah, your specific narrow  
3 question, I have not confirmed that fact with  
4 anyone at Northeastern.

5 Q So you --

6 A I've confirmed that fact with many other  
7 universities around the world, of which  
8 Northeastern is the community, so if you want to  
9 narrow my answer to a no to this meaningless little  
10 segment --

11 Q It's called evidence.

12 A -- I'll say you're right, I didn't talk  
13 to anyone at Northeastern.

14 Q Okay.

15 A But it's not a fair question.

16 Q You have no evidence of anyone at  
17 Northeastern saying that all capstone project  
18 papers must be published, correct?

19 A That is correct --

20 Q Thank you.

21 A -- with the caveat I gave you in my last  
22 response.

1           Q     The Exhibit B in Exhibit -- Petitioner  
2     Exhibit 1002, and I'm sorry, it's Appendix B, is a  
3     one-page flyer on IRis --

4           A     Okay.

5           Q     -- that appears to be from February of  
6     2010. Do you see that, sir?

7           A     Where does it say 2010?

8           Q     It talks about access to IRis in February  
9     2010.

10          A     I'm sorry, I don't see a date anywhere on  
11     here.

12          Q     On the right-hand side under increased  
13     visibility of your research, do you see that, sir,  
14     talks about access to IRis in February 2010?

15          A     Yes, I see that.

16          Q     So we know at least this document didn't  
17     come from 2007, correct?

18          A     That's not what this access to IRis in  
19     February 2010 means.

20          Q     I see. So it's your opinion that this  
21     document could magically have been written in 2007  
22     and include data from February of 2010?

1           A     Sorry.

2                     MR. WONG:  Objection, form.

3           A     That's not what I said.  Maybe I  
4  misunderstood --

5           Q     Yeah.

6           A     -- your original question.  Why don't you  
7  ask --

8           Q     My question is isn't it fair to say that  
9  because there's a February 2010 date in here, we  
10 can understand that this document did not exist in  
11 2007, correct?

12          A     By this document, are you referring to  
13 this piece of --

14          Q     What you submitted in Appendix B.

15          A     Excuse me.  I'm in the middle of my  
16 answer.  You're talking about page 216 in Exhibit  
17 1002?  Is that what you mean by this document?

18          Q     Yes.

19          A     Or do you mean the ISDU document?

20          Q     I'm talking about a document that you  
21 submitted as Appendix B in one of your  
22 declarations.  Fair to say that Exhibit -- or

1 Appendix B did not exist in 2007, correct?

2 A That -- well, unclear whether the -- the  
3 data existed before 2007, but the document could  
4 not have been published before 2000 -- February  
5 2010, that's correct.

6 Q The document mentions that people who  
7 submit things to IRis receive monthly e-mail  
8 reports on downloads of their work. Do you see  
9 that on the left-hand side?

10 A I'm afraid I don't.

11 Q It's under why IRis, easy to use and  
12 highly functional? Second bullet point.

13 A Receive monthly e-mail reports on  
14 downloads of your work, it does say that.

15 Q Yes, and fair to say that because you did  
16 not include it in any of the declarations you  
17 submitted with the Patent Trademark -- or Patent  
18 Trial and Appeal Board, you have never seen any  
19 monthly e-mail reports related to the ISDU paper,  
20 correct?

21 A I would not have those e-mails available  
22 to me, so of course not.

1           Q     And you've never contacted anyone at  
2     Northeastern University to try and obtain those  
3     e-mails on monthly downloads of the ISDU reference.

4           MR. WONG:  Objection, form.

5           A     I have not contacted anyone at  
6     Northeastern to get e-mails from 15 years ago,  
7     that's correct.

8           Q     Or e-mails from any time ago, correct,  
9     with regard to the ISDU reference?

10          A     That's correct, there would be no way I  
11     would have access to those e-mails, but no, I've  
12     never done it.

13          Q     And you've never asked anyone at  
14     Northeastern University for any e-mails or other  
15     documents showing any downloads of the ISDU  
16     reference, correct?

17          A     I wouldn't have access to those e-mails.  
18     They wouldn't be my e-mail account.

19          Q     I'm asking if you made --

20          A     No, I didn't because I knew I wouldn't be  
21     able -- if I wanted to do that, I wouldn't be able  
22     to get them.  It's not my e-mail account.

1           Q     So again, you never made the effort,  
2     correct?

3           A     It would be a stupid effort because I  
4     know they wouldn't be made available to me. I  
5     could try to change a penny into gold, and I  
6     wouldn't be able to do it. I would not have access  
7     to those e-mails even if I asked.

8           Q     But you never asked, correct?

9           A     Why would I ask for something that I know  
10    I couldn't get? So no, I didn't ask. You're  
11    right, you're right. You got me.

12          Q     Did you ever reach out to the professor  
13    who taught the capstone class for which the ISDU  
14    paper was made?

15          A     No.

16               MR. JOHNSON: Why don't we take -- is it  
17    almost noon? Do you want to break for lunch?

18               MR. WONG: If you'd like.

19               MR. JOHNSON: Let's go off the record.

20               MR. WONG: Before we go off the record, I  
21    just want to make sure --

22               MR. JOHNSON: Sorry.

1           MR. WONG: We reserve the right for read  
2 and review by the witness of the transcript. Just  
3 want to make sure it's on the record.

4           MR. JOHNSON: Yeah, appreciate that.  
5 Let's go off the record and take a break for lunch.

6                       (Recessed at 11:52 a.m.)

7                       (Reconvened at 12:53 p.m.)

8 BY MR. JOHNSON:

9           Q     Sir, before the break, we were talking  
10 about the IRis system and the ISDU paper that's  
11 Petitioner's Exhibit 1012. Do you recall that?

12          A     Yes.

13          Q     Okay. I just want to clear up a couple  
14 of things. You're aware that the ISDU Petitioner  
15 Exhibit 1012's for a capstone project, correct?

16          A     That's right.

17          Q     All right. It's not a thesis, correct?

18          A     Well, as I explained before, the --  
19 capstone project is now required for an engineering  
20 degree, and it has replaced the senior thesis as  
21 the final project to be worked on.

22          Q     And are you aware of a requirement at

1 Northeastern University that engineers do a  
2 capstone project?

3 A Yes.

4 Q Where did you get that awareness from?

5 A I was part of a joint center called  
6 CENSSIS. It's actually listed in the document we  
7 looked at before, and we had numerous interactions  
8 with faculty and students at Northeastern, and so I  
9 heard firsthand discussions of senior projects that  
10 as they were designed at Northeastern, because of  
11 course, we always compare our senior projects to  
12 your senior projects et cetera.

13 Q You say a document that we looked at  
14 before. What document were you referring to?

15 A It was Appendix -- Appendix D, delta, of  
16 Exhibit 1002.

17 Q And is there a specific page within  
18 Appendix D that you're referring to?

19 A Oh, where it mentioned census?

20 Q Yes.

21 A I didn't keep track of it because it's  
22 kind of an incidental thing. I can find it if you

1 want.

2 Q I would like that.

3 A Okay. It's on page 271. And in the  
4 middle, it says part of IRis, Northeastern  
5 University's institutional repository, and then it  
6 says CENSSIS, C-E-N-S-S-I-S, Center for Subsurface  
7 Sensing and Imaging Systems.

8 Q And what is the Center for Subsurface  
9 Sensing and Imaging Systems?

10 A Well, at the time, it was an NF --  
11 NSF-funded research center, which is a formal  
12 title. It's something that they grant, and Boston  
13 University was part of that consortium, as was  
14 Northeastern. The other two schools were  
15 Rensselaer Polytech and University of Mayaguez,  
16 M-A-Y-A-G-U-E-Z, in Puerto Rico.

17 Q Did CENSSIS have anything to do with  
18 projects relating to microwave ovens?

19 A I suspect not, but I'm not aware of all  
20 the projects that were going on. I'm not aware of  
21 any.

22 Q You're not aware of whether or not the

1 ISDU project was part of CENSSIS, correct?

2 A No, it was not.

3 Q It was not. Are you aware of any  
4 documents from Northeastern University that state  
5 that capstone projects must be publicly available?

6 A I'm not aware of a specific document that  
7 says that. It's kind of an inherent feature of  
8 capstone projects.

9 Q Are you aware of any document that  
10 actually says that?

11 A It's in the ABET guidelines for senior  
12 project, Accreditation Board for Engineering and  
13 Technology, which is the body that accredits  
14 engineering programs and universities, and they set  
15 the rules that you have to follow to get  
16 accredited.

17 Q And those are not present in any of the  
18 declarations that you've submitted in these post  
19 grant review proceedings, correct?

20 A The ABET documents?

21 Q Correct.

22 A They are not.

1           Q     Do you know when that became a part of  
2     the ABET guidelines?

3           A     1990.

4           Q     How do you recall that date?

5           A     Because my department chair came to me  
6     and said ABET is now requiring a senior capstone  
7     project, you're it, make up the course, so I did.

8           Q     That's when the capstone project became  
9     part of required curriculum; is that right?

10          A     That's right.

11          Q     Did it discuss required publication in  
12     1990?

13          A     You're talking about the ABET document?

14          Q     Yes.

15          A     I believe it did at the time, yeah.

16          Q     Do you have a copy of the -- well, it's  
17     fair to say that ABET document from 1990's not part  
18     of your appendices or declarations that have been  
19     submitted to the Patent Trial and Appeal Board.

20          A     No, it is not.

21          Q     Do you know, does the ABET guideline  
22     today discuss publication requirements?

1           A     I haven't been involved with ABET  
2     proceedings for about the past decade, so I'm not  
3     sure. I would be speculating.

4           Q     And you didn't review those in  
5     preparation of any of your declarations in this  
6     matter, correct?

7           A     ABET documents from the past ten years?

8           Q     Or ever.

9           A     I did not -- well, I reviewed them when  
10    they came out. I didn't review them in preparation  
11    for writing these declarations.

12          Q     You mentioned your daughter submitted a  
13    thesis at Northeastern earlier, correct?

14          A     That's right.

15          Q     Was she getting undergraduate or a  
16    graduate degree?

17          A     Graduate degree.

18          Q     What type of graduate degree? Master's  
19    or Ph.D.?

20          A     Ph.D.

21          Q     Ph.D. in what?

22          A     Mechanical engineering.

1           Q     Do you know if she submitted her Ph.D.  
2     thesis on DRS or IRis?

3           A     Whatever system is the active system  
4     right now, that is where she submitted it.

5           Q     I see. When did she submit that paper?  
6     Maybe it's easier --

7           A     Four years ago roughly. It was the end  
8     of --

9           Q     Fair to say well after 2014.

10          A     Yes.

11          Q     Sir, I'm going to hand you what's been  
12     previously submitted as Petitioner Exhibit 1014.  
13     This is a copy of U.S. patent number 4,496,817 to  
14     the inventor whose last name is Smith. Do you see  
15     that, sir?

16          A     Yes.

17          Q     And do you agree that this does not  
18     disclose a reset feature?

19                 MR. WONG: Objection, form.

20          A     That is correct.

21          Q     And Smith talks about using a gas sensor  
22     responsive to -- and I'm reading in column 3 of

1 Smith, that first full paragraph towards the end,  
2 line 16, this -- this sensor is responsive to the  
3 cumulative concentration of water vapor and various  
4 organic gases. Do you see that sentence, sir?

5 A Yes.

6 Q And before that, it's talking about a  
7 sensor called a Figaro engineering model TGS number  
8 186. Do you see that?

9 A Yes.

10 Q Okay. In your declaration submitted as  
11 Petitioner Exhibit 1002, you submit an Appendix C  
12 for a different sensor, correct?

13 A No.

14 Q Why do you say no?

15 A There is no such sensor as the Figaro TGS  
16 186. The only one that exists is the TGS 816.

17 Q Did you search all Figaro sensors that  
18 were available in 1983?

19 A Yes.

20 Q How did you do that?

21 A By going to the date feature of the  
22 search engine to look at only documents up to 1983.

1 Q What search engine did you use?

2 A Google. I think that's what I recall.

3 Q I see. So your Google search results did  
4 not produce any documents showing a Figaro sensor  
5 186 from 1983; is that correct?

6 A Or from any time period.

7 Q Did you contact anyone at Figaro?

8 A No.

9 Q So instead, you assume it's a typo,  
10 correct?

11 A That's right.

12 Q And you submit specifications for a TGS  
13 816 sensor, correct?

14 A That's right.

15 Q And these specifications you believe are  
16 the sensor that would have been used in conjunction  
17 with the microwave oven of Smith, correct?

18 A Well, it's listed as a possible  
19 embodiment. It says in line 13 of column 3, sensor  
20 52 in the illustrative embodiment of figure 2 is a  
21 gas sensor readily available for figure 8 -- from  
22 Figaro Engineering, and it describes what the

1 sensor does, responsive to cumulative concentration  
2 of water vapor in various organic gases.

3 Q So you looked at the functionality --

4 A Sorry, I'm --

5 Q Oh, I'm sorry.

6 A And that -- are -- those are the features  
7 that are indicated on the data sheet for the TGS  
8 816.

9 Q Got it. So you looked at the features  
10 required in the Smith reference and then went to  
11 find those features in an existing Figaro sensor,  
12 correct?

13 MR. WONG: Objection, form.

14 A Incorrect.

15 Q Why do you say that's incorrect?

16 A I went searching for the model TGS 186,  
17 and I found a list of Figaro sensors, so they all  
18 had similar properties in terms of what they could  
19 detect, water vapor and volatile organic compounds  
20 and various organic gases, as Smith says at line 17  
21 to 18 of column 3, so I chose the TGS 816 as the  
22 probable one being referred to in the Smith patent

1 based on a typo, but it really didn't affect my  
2 conclusion in any way because the characteristics  
3 of the 816 are those that are enumerated in column  
4 3 of the Smith patent.

5 Q The list that you generated with all  
6 these sensors, you didn't include that in any of  
7 your declarations, did you?

8 A No.

9 Q And the date of the list certainly wasn't  
10 from 1983, correct?

11 A I don't recall.

12 Q Fair to say that the specifications you  
13 submitted in Appendix C are not from 1983, correct?

14 A I wouldn't say that's fair to say.

15 Q I'm sorry, you said what?

16 A I wouldn't say that is fair to say. I  
17 just don't remember.

18 Q They're dated 9 of '99. There's a  
19 revision, 9 slash 99.

20 A I'm sorry, where is that?

21 Q Lower left hand on the second page, page  
22 219.

1           A     Second page. Ah, second page. That's  
2 correct.

3           Q     So this document is from 16 years after  
4 Smith was filed, correct?

5           A     Yeah.

6           Q     And it talks about a sensor that uses a  
7 heating element in it, correct?

8           A     Correct.

9           Q     That heating element requires a  
10 preheating period before testing, correct?

11          A     Where are you seeing that?

12          Q     Same page, just a little bit higher.

13          A     Which same page? The first or the  
14 second?

15          Q     Second page, page 219 of Exhibit 1002,  
16 just a little above the date, it says preheating  
17 period before testing, more than seven days. Do  
18 you see that?

19          A     Okay.

20          Q     Do you know what the power requirements  
21 are of the heating element in this unit? I should  
22 say the stand-by power requirements.

1 MR. WONG: Objection, form.

2 BY MR. JOHNSON:

3 Q Do you know what the stand-by power  
4 requirements are for this sensor that you've  
5 submitted in Appendix C?

6 A Can you tell me where you're accessing  
7 the term "stand-by power"?

8 Q I'm asking if you know what the stand-by  
9 power requirements are for this sensor.

10 A What do you mean by stand-by power?

11 Q You don't understand what stand-by power  
12 is; is that correct?

13 A Well, it's a general term, and you want  
14 to apply it specifically to the TGS 816. I don't  
15 see that term on the data sheet, so --

16 Q You as a professor of electrical  
17 engineering don't know how to do that; is that  
18 correct?

19 A I'm sorry, don't know how to do what?

20 Q Apply what the stand-by power requirement  
21 would be for this sensor.

22 A Stand-by power is contextual.

1           Q     I see. So you don't know the stand-by  
2 power requirement for the TGS 816; is that correct?

3           A     I'm going to submit that there's really  
4 no such thing because the elements consist of a  
5 heater and the sensing electrodes, and there's  
6 nothing on this data sheet that's -- that I can  
7 find that's indicative of stand-by anything.

8           Q     Do you know what the heater power  
9 consumption specification is for this sensor?

10          A     I could compute it because the spec sheet  
11 gives five volts for the heater voltage, and the  
12 resistance is 30 ohms, and I could find the power  
13 by taking the square of the voltage dividing it by  
14 the resistance, so that would be 25 squared divided  
15 by 30 ohms. On the order of one watt, give or  
16 take. And then if you look at the last line of the  
17 second box under electrical characteristics, it  
18 says heater power consumption for a heater voltage  
19 of five volts is 835 milliwatts, so my estimate of  
20 a watt or so is consistent with 835 milliwatts.

21          Q     Are you aware of a statutory limit on  
22 stand-by power draw for microwave ovens?

1           A     For the whole oven? Statutory by what  
2 authority?

3           Q     United States code.

4           A     Which United States code?

5           Q     I'm asking if you're aware of any United  
6 States code that applies to the stand-by power  
7 limits for microwave ovens.

8           A     What do you mean by stand-by power?

9           Q     Again, are you aware of any code  
10 requirements for stand-by power on microwave ovens?

11          A     Well, what do you mean by stand-by power,  
12 is my question. It's a fairly broad term.

13          Q     Okay, so have you looked at any United  
14 States code pertaining to microwave ovens prior to  
15 today's deposition?

16          A     I have looked at UL specifications for  
17 microwave ovens.

18          Q     Did you look at any United States code  
19 requirements for microwave ovens in preparation for  
20 your opinions that appear in these declarations for  
21 the post grant review proceedings?

22          A     Well, which United States codes? There's

1 so many. Which one do you mean, or are you just  
2 saying any?

3 Q Any.

4 A In preparation of these declarations, I  
5 did not refer to any U.S. standards, having looked  
6 at UL specifications prior to writing these  
7 declarations.

8 Q Did you review other Smith patents in  
9 preparation for your opinions that are contained in  
10 this declaration, Petitioner's Exhibit 1002 or  
11 Petitioner's Exhibit 1023?

12 A No, I did not.

13 Q Would you agree with me that the TGS 816  
14 sensor is not a humidity sensor?

15 A If you look at the plot on the lower  
16 right of page 218 --

17 Q There we go.

18 A It shows variation in the RS to R naught  
19 ratio with humidity.

20 Q Those are operating conditions, correct,  
21 sir? Temperature/humidity dependence?

22 A In principle, one can use those plots by

1 holding ambient temperature at a constant value to  
2 discern relative humidity values.

3 Q But the plot itself is for determining  
4 the RH -- or the RS-RO value in various  
5 temperature/humidity conditions, correct?

6 A That's right.

7 Q And this sensor is described in this  
8 document as a general purpose sensor with  
9 sensitivity to a wide range of combustible gases,  
10 correct?

11 A That's right.

12 Q Water vapor is not a combustible gas,  
13 correct?

14 A That's right.

15 Q You suggest in paragraph 114 of your  
16 declaration at Petitioner Exhibit 1023 that a reset  
17 function could have been facilitated by use of an  
18 electronically controlled relay.

19 A Excuse me one moment.

20 Q Sure.

21 A 1023, what --

22 Q Page 64, sir, paragraph 114.

1           A     Sixty-four. So could you repeat your  
2 question?

3           Q     I'm just confirming what you said in your  
4 declaration, that a reset functionality could have  
5 been facilitated by the use of an electronically  
6 controlled relay. That's what you say in paragraph  
7 114, correct?

8           A     That sentence does appear in paragraph  
9 114.

10          Q     But there is no disclosure of a reset  
11 relay in Smith, correct?

12          A     That's correct.

13          Q     You added that potential implementation  
14 on your own in paragraph 114, correct?

15          A     Yes, it starts at the top of page 65  
16 where I attribute adding the reset state  
17 functionality to what a person of skill in the art  
18 would have understood.

19          Q     All right. That entire paragraph though  
20 includes only one reference to Smith for the  
21 suggestion that Smith and/or the Smith-Emma  
22 combination teach that a goal of the Smith smoke

1 sensor is to anticipate fires before they occur; is  
2 that correct?

3 A That is what I say in paragraph 114.

4 Q You understand that Smith wants a  
5 low-cost sensor, right? And I'm just getting that,  
6 for your reference, from column 1 line 50, Smith  
7 notes that this arrangement eliminates the need for  
8 the relatively costly thermal cutout switch, and  
9 also eliminates the need for the in situ  
10 temperature sensor of the Buck method.

11 A What Smith is saying is that replacing  
12 the two required sensors disclosed in Buck,  
13 combination of humidity and temperature sensor  
14 would be available at a much lower cost by using a  
15 single sensor as described in the Smith patent.

16 Q All right, sir, let's look at what has  
17 been submitted as Petitioner Exhibit 1015. Sir,  
18 this is a copy of U.S. patent number 8,446,048 with  
19 the first name inventor's last name being Butt.  
20 You see that, sir?

21 A Yes.

22 Q You would agree with me that the Butt

1 patent discloses an outlet with a wireless alarm, a  
2 wireless reset button, and some sort of appliance  
3 plugged into the outlet; is that correct?

4 A That is one embodiment disclosed in Butt.

5 Q And Butt uses wireless systems because  
6 wired systems are hard for consumers to install and  
7 expensive for manufacturers to integrate. Do you  
8 agree with that?

9 A Yes.

10 Q Is there a different embodiment other  
11 than the wireless embodiment that we talked about  
12 disclosed in Butt?

13 A Yes.

14 Q Where is that?

15 A It's shown in figure 1B. It's described  
16 at -- starting at the top of column 5.

17 Q You agree that's the exact same thing.  
18 It's just wired together as opposed to being  
19 wirelessly connected, correct?

20 A Yes.

21 MR. WONG: Objection, form.

22 BY MR. JOHNSON:

1           Q     Fair to say Butt does not disclose a  
2     wired system being placed inside of an appliance,  
3     correct?

4           A     Sorry, I didn't hear the last word after  
5     "inside."

6           Q     An appliance.

7           A     That's correct, not explicitly.

8           Q     And you agree that Butt references an  
9     exemplary wireless smoke detector that includes the  
10    ADEMCO 5806, correct?

11          A     That's right.

12          Q     And I believe you provided an Appendix E  
13    to Petitioner Exhibit 1002 that is for the ADEMCO  
14    5806.

15          A     Right.

16          Q     Is that a smoke alarm?

17          A     It is called a smoke detector. That's  
18    the title of the device as shown on page 304 of  
19    Exhibit 1002.

20          Q     It's actually smoke detector with built-  
21    in wireless transmitter, correct?

22          A     Correct.

1           Q     Right, and did you read the entirety of  
2 these specifications?

3           A     I did not.

4           Q     Did you read the part where it says where  
5 not to locate the detectors? Would you agree with  
6 me that the first bullet point under Appendix D  
7 related to this ADEMCO smoke detector referenced in  
8 the Butt patent for where not to locate the  
9 detector is in kitchens?

10          A     Sorry, sir, I don't see bullet points.

11          Q     It's on page 306, sir.

12          A     Ah. Yes, it does show that bullet point.  
13 It does have that bullet point.

14          Q     And the next one is in air streams  
15 passing by kitchens, correct?

16          A     Right.

17          Q     And it also says in unheated buildings at  
18 the top of the next column on that same page, sir.  
19 See that?

20          A     Correct.

21          Q     And it notes that the temperature limits  
22 for this smoke detector referenced in the Butt

1 patent are 40 degrees to a hundred degrees

2 Fahrenheit, correct?

3 A Yes.

4 Q Fair to say temperatures in microwave

5 oven cavities often exceed a hundred degrees

6 Fahrenheit, correct?

7 A I'm not sure that's true.

8 Q Have you ever made water boil in a

9 microwave oven?

10 A Good point. Yes, I have, so yes, it does

11 exceed a hundred -- well, no, that would be 212 F,

12 so yes, it would exceed 100 F, right.

13 Q And fair to say you did not read the

14 where not to locate detectors before preparing your

15 opinions that are contained in Petitioner Exhibit

16 1002 or Petitioner Exhibit 1023.

17 A That's correct, I relied on what is

18 disclosed in Butt.

19 Q You would agree with me that the Butt

20 system is meant to be used with dumb appliances.

21 MR. WONG: Objection, form.

22 A Sorry. What do you mean by a dumb

1 appliance?

2 Q A standard appliance that any consumer  
3 can buy.

4 A I still don't know what you mean by a  
5 dumb appliance or a standard appliance.

6 Q An appliance without a smoke sensor. Is  
7 that fair to say?

8 A You're saying Butt, what is disclosed in  
9 Butt. Butt does not disclose explicitly putting  
10 smoke detector inside an appliance.

11 Q In fact, Butt doesn't really disclose  
12 microwaves at all, right?

13 A Correct.

14 Q Butt doesn't disclose a refrigerator at  
15 all, correct?

16 A Correct.

17 Q It doesn't discuss modifying the  
18 appliance that's plugged into the plug in any way,  
19 correct?

20 A Correct.

21 Q Sir, I'm going to hand you what has been  
22 marked as Petitioner Exhibits 1020 -- sorry,

1     Petitioner Exhibit 1020. This will be the single-  
2     sided. It's a little thicker. Here you go, sir.  
3     Six, this is a copy of United States patent  
4     application publication 2012 slash 0276763, where  
5     the last name of the inventor is Quezada. Do you  
6     see that?

7             A     Yes.

8             Q     You would agree that Quezada does not  
9     talk about incorporation of USB ports or power  
10    outlets into appliances, correct?

11            A     That's correct.

12            Q     There's no mention in Quezada of using  
13    this in a combination appliance, correct?

14            A     Correct.

15            Q     No mention of using this invention in a  
16    microwave, correct?

17            A     Correct.

18            Q     No mention of using this in a  
19    refrigerator, correct?

20            A     Correct.

21                   MR. JOHNSON: Why don't you give me ten  
22    minutes.

1 (Recessed at 1:41 p.m.)

2 (Reconvened at 1:59 p.m.)

3 (Whereupon, Ms. Wood joined the deposition.)

4 BY MR. JOHNSON:

5 Q Professor Horenstein, first I want to  
6 thank you for your time today, and I also just want  
7 to confirm that during the breaks that we've taken  
8 today, you didn't talk to your counsel about  
9 anything of substance related to today's testimony,  
10 correct?

11 A Correct.

12 MR. JOHNSON: Thank you for your time,  
13 sir. I have no additional questions for you at  
14 this time.

15 THE WITNESS: Thank you.

16 EXAMINATION BY COUNSEL FOR COLLEGE PRODUCTS, INC.

17 and THE WITNESS

18 BY MR. WONG:

19 Q Just have a couple of questions,  
20 Dr. Horenstein. Would you please refer to Appendix  
21 E from Petitioner Exhibit 1002?

22 A Sorry, did you say A or --

1           Q     E, E as in Ed. This is the Honeywell  
2     ADEMCO device.

3           A     Okay.

4           Q     And do you recall that you were asked  
5     questions about the -- where not to locate  
6     detectors topic that's discussed on page -- let's  
7     see, 306?

8           A     Yes.

9           Q     Does the information contained there that  
10    counsel went over with you, does that change any of  
11    your opinions that you stated in your declaration?

12          A     No.

13               MR. WONG: No further questions.

14               MR. JOHNSON: No follow-up. Thank you,  
15    Professor Horenstein. Appreciate your time.

16               THE WITNESS: Okay, thank you.

17               (Off the record at 2:00 p.m.)

18

19

20

21

22

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22

ACKNOWLEDGMENT OF DEPONENT

I, Mark N. Horenstein, Ph.D., do hereby  
acknowledge that I have read and examined the  
foregoing testimony, and the same is a true,  
correct and complete transcription of the testimony  
given by me, and any corrections appear on the  
attached errata sheet signed by me.

\_\_\_\_\_

(DATE)

\_\_\_\_\_

(SIGNATURE)

1 CERTIFICATE OF SHORTHAND REPORTER - NOTARY PUBLIC

2 I, KAREN YOUNG, Court Reporter and Notary  
3 Public within and for the District of Columbia, do  
4 hereby certify:

5 That Mark N. Horenstein, Ph.D., the  
6 witness whose deposition is hereinbefore set forth,  
7 was duly sworn by me before the commencement of  
8 such deposition and that such deposition was taken  
9 before me and is a true record of the testimony  
10 given by such witness.

11 I further certify that the adverse party,  
12 College Products, Inc., was represented by counsel  
13 at the deposition.

14 I further certify that the deposition of  
15 Mark N. Horenstein, Ph.D. occurred at the offices  
16 of Blank Rome LLP, 1825 Eye Street, Northwest,  
17 Washington, D.C., on Thursday, June 27, 2024,  
18 commencing at 9:06 a.m. to 2:00 p.m.

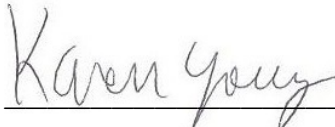
19 I further certify that I am not related  
20 to any of the parties to this action by blood or  
21 marriage, I am not employed by or an attorney to  
22 any of the parties to this action, and that I am in

1 no way interested, financially or otherwise, in the  
2 outcome of this matter.

3

4 IN WITNESS WHEREOF, I have hereunto set my hand  
5 this 30th day of June, 2024.

6

7   
8 \_\_\_\_\_

9 NOTARY PUBLIC IN AND FOR THE  
10 DISTRICT OF COLUMBIA

11

12 My commission expires:

13 July 31, 2024

14

15

16

17

18

19

20

21

22

| A               |                       |                     |                 |
|-----------------|-----------------------|---------------------|-----------------|
| <b>abet</b>     | 137:5                 | <b>action</b>       | <b>after</b>    |
| 114:11, 114:20, | <b>above</b>          | 139:20, 139:22      | 48:19, 54:17,   |
| 115:2, 115:6,   | 68:3, 84:16,          | <b>active</b>       | 79:9, 79:15,    |
| 115:13, 115:17, | 89:1, 89:2,           | 117:3               | 86:20, 92:13,   |
| 115:21, 116:1,  | 122:16                | <b>activity</b>     | 92:15, 93:16,   |
| 116:7           | <b>absent</b>         | 53:18, 54:5         | 95:3, 95:8,     |
| <b>ability</b>  | 59:4                  | <b>actually</b>     | 117:9, 122:3,   |
| 99:7, 99:9,     | <b>absolutely</b>     | 11:11, 29:22,       | 131:4           |
| 99:10, 99:12,   | 10:2                  | 30:1, 54:22,        | <b>again</b>    |
| 100:1, 100:6,   | <b>ac</b>             | 90:21, 91:7,        | 27:7, 30:20,    |
| 100:17          | 46:16, 46:17          | 92:20, 93:7,        | 33:14, 39:16,   |
| <b>able</b>     | <b>academia</b>       | 93:18, 112:6,       | 45:13, 49:20,   |
| 109:21, 110:6   | 28:5, 28:8,           | 114:10, 131:20      | 55:15, 56:12,   |
| <b>about</b>    | 85:18, 104:11         | <b>add</b>          | 69:6, 74:4,     |
| 9:21, 15:20,    | <b>academic</b>       | 34:5, 34:6,         | 78:1, 85:4,     |
| 16:5, 20:8,     | 103:6                 | 34:16, 71:20,       | 93:3, 99:22,    |
| 22:3, 24:20,    | <b>access</b>         | 72:19               | 103:7, 110:1,   |
| 26:5, 26:8,     | 97:18, 97:20,         | <b>added</b>        | 125:9           |
| 28:20, 29:21,   | 98:14, 99:7,          | 34:21, 35:3,        | <b>against</b>  |
| 29:22, 32:16,   | 99:9, 99:10,          | 35:9, 94:16,        | 100:4           |
| 32:17, 33:2,    | 102:19, 103:9,        | 95:3, 128:13        | <b>ago</b>      |
| 33:16, 44:22,   | 106:8, 106:14,        | <b>adding</b>       | 23:21, 24:17,   |
| 50:8, 50:11,    | 106:18, 109:11,       | 65:5, 70:15,        | 32:16, 109:6,   |
| 51:4, 51:14,    | 109:17, 110:6         | 72:13, 128:16       | 109:8, 117:7    |
| 53:16, 57:6,    | <b>accessing</b>      | <b>addition</b>     | <b>agree</b>    |
| 58:1, 61:11,    | 123:6                 | 46:13, 73:6         | 57:20, 58:1,    |
| 62:3, 65:12,    | <b>accommodate</b>    | <b>additional</b>   | 69:12, 71:22,   |
| 67:16, 67:17,   | 8:17                  | 47:6, 47:10,        | 72:3, 72:8,     |
| 67:19, 68:1,    | <b>according</b>      | 54:1, 136:13        | 101:21, 102:18, |
| 68:21, 69:6,    | 102:20, 103:10        | <b>addressing</b>   | 103:8, 117:17,  |
| 69:7, 69:10,    | <b>account</b>        | 49:6                | 126:13, 129:22, |
| 69:13, 69:16,   | 109:18, 109:22        | <b>ademco</b>       | 130:8, 130:17,  |
| 69:20, 71:10,   | <b>accreditation</b>  | 131:10, 131:13,     | 131:8, 132:5,   |
| 73:14, 74:13,   | 81:5, 114:12          | 132:7, 137:2        | 133:19, 135:8   |
| 80:7, 84:5,     | <b>accredited</b>     | <b>adequate</b>     | <b>agreed</b>   |
| 87:3, 87:13,    | 114:16                | 11:19               | 70:14           |
| 88:2, 88:22,    | <b>accredits</b>      | <b>admit</b>        | <b>ah</b>       |
| 90:16, 96:14,   | 114:13                | 58:5                | 122:1, 132:12   |
| 97:6, 97:9,     | <b>accurate</b>       | <b>advanced</b>     | <b>air</b>      |
| 103:1, 106:8,   | 52:1, 52:4,           | 98:4                | 132:14          |
| 106:14, 107:16, | 52:12, 52:13,         | <b>advantageous</b> | <b>al</b>       |
| 107:20, 111:10, | 76:11, 76:16          | 68:1                | 82:15           |
| 115:13, 116:2,  | <b>accurately</b>     | <b>adverse</b>      | <b>alarm</b>    |
| 117:21, 118:6,  | 89:11                 | 139:11              | 33:11, 33:12,   |
| 122:6, 130:11,  | <b>acknowledge</b>    | <b>affect</b>       | 33:14, 130:1,   |
| 135:9, 136:8,   | 138:3                 | 121:1               | 131:16          |
|                 | <b>acknowledgment</b> | <b>afraid</b>       | <b>alarms</b>   |
|                 | 138:1                 | 108:10              | 27:13, 27:16,   |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 27:18, 33:9<br><b>aligning</b><br>68:19<br><b>alignment</b><br>68:14<br><b>all</b><br>8:1, 8:9, 8:21,<br>11:19, 14:9,<br>17:19, 21:1,<br>25:16, 28:1,<br>32:1, 50:16,<br>57:21, 59:12,<br>68:20, 69:6,<br>74:2, 75:11,<br>75:15, 75:19,<br>78:6, 81:6,<br>84:15, 89:7,<br>99:15, 102:15,<br>105:17, 111:17,<br>113:19, 118:17,<br>120:17, 121:5,<br>128:19, 129:16,<br>134:12, 134:15<br><b>alleged</b><br>61:16<br><b>allowed</b><br>99:16, 99:17<br><b>allows</b><br>101:21<br><b>almost</b><br>110:17<br><b>already</b><br>10:4, 50:19,<br>55:9<br><b>also</b><br>13:14, 14:6,<br>20:3, 40:15,<br>42:12, 47:19,<br>49:10, 66:1,<br>72:19, 73:9,<br>73:21, 101:21,<br>129:9, 132:17,<br>136:6<br><b>always</b><br>45:5, 75:21,<br>76:8, 81:10,<br>112:11<br><b>ambient</b><br>127:1 | <b>amend</b><br>54:22<br><b>among</b><br>40:15<br><b>amped</b><br>23:18<br><b>analysis</b><br>37:5, 61:15,<br>62:15<br><b>another</b><br>17:17, 47:19,<br>51:11, 60:9,<br>73:3, 78:6<br><b>answer</b><br>7:20, 11:16,<br>30:17, 31:16,<br>31:20, 31:21,<br>36:20, 48:20,<br>49:17, 52:9,<br>55:1, 59:10,<br>67:4, 75:20,<br>80:14, 93:14,<br>96:3, 103:13,<br>104:17, 105:9,<br>107:16<br><b>answered</b><br>29:2, 37:10<br><b>answering</b><br>24:8<br><b>anticipate</b><br>88:1, 129:1<br><b>anticipated</b><br>56:9, 56:17,<br>87:21<br><b>anticipation</b><br>56:22, 57:13,<br>71:19<br><b>antithetical</b><br>101:5<br><b>any</b><br>8:6, 8:15,<br>11:15, 14:20,<br>18:11, 25:4,<br>25:7, 25:10,<br>25:17, 26:13,<br>27:1, 27:5,<br>27:13, 27:15,<br>27:21, 34:21, | 35:5, 35:9,<br>42:3, 45:4,<br>46:14, 49:15,<br>51:7, 52:19,<br>53:2, 53:21,<br>54:1, 56:6,<br>56:9, 56:14,<br>56:15, 56:17,<br>57:21, 59:13,<br>59:16, 61:8,<br>61:12, 61:18,<br>62:2, 62:6,<br>62:11, 62:12,<br>62:16, 62:18,<br>70:1, 72:9,<br>74:18, 79:12,<br>95:17, 96:5,<br>96:10, 96:13,<br>97:12, 99:6,<br>99:9, 101:8,<br>108:16, 108:18,<br>109:8, 109:14,<br>109:15, 113:21,<br>114:3, 114:9,<br>114:17, 116:5,<br>119:4, 119:6,<br>121:2, 121:6,<br>125:5, 125:9,<br>125:13, 125:18,<br>126:2, 126:3,<br>126:5, 134:2,<br>134:18, 137:10,<br>138:6, 139:20,<br>139:22<br><b>anyone</b><br>90:15, 92:20,<br>93:7, 93:13,<br>93:18, 96:14,<br>99:2, 104:4,<br>104:13, 105:4,<br>105:13, 105:16,<br>109:1, 109:5,<br>109:13, 119:7<br><b>anything</b><br>22:3, 30:9,<br>69:13, 69:16,<br>69:20, 113:17,<br>124:7, 136:9 | <b>anywhere</b><br>70:8, 71:13,<br>75:2, 104:1,<br>106:10<br><b>apologize</b><br>16:9, 31:6<br><b>apparatus</b><br>26:1, 45:5<br><b>appeal</b><br>1:3, 7:7, 7:16,<br>9:1, 12:20,<br>51:18, 101:10,<br>108:18, 115:19<br><b>appear</b><br>17:5, 48:8,<br>48:16, 49:1,<br>50:1, 78:15,<br>94:21, 125:20,<br>128:8, 138:6<br><b>appeared</b><br>15:11, 94:6<br><b>appears</b><br>18:5, 20:18,<br>47:21, 70:5,<br>88:8, 106:5<br><b>appendices</b><br>17:17, 115:18<br><b>appendix</b><br>18:3, 18:5,<br>86:14, 86:16,<br>86:17, 86:20,<br>101:11, 106:2,<br>107:14, 107:21,<br>108:1, 112:15,<br>112:18, 118:11,<br>121:13, 123:5,<br>131:12, 132:6,<br>136:20<br><b>appliance</b><br>22:14, 22:17,<br>22:18, 22:21,<br>24:3, 24:5,<br>24:7, 24:12,<br>24:16, 24:22,<br>25:5, 31:11,<br>65:10, 65:15,<br>65:17, 67:13,<br>130:2, 131:2, |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 131:6, 134:1,<br>134:2, 134:5,<br>134:6, 134:10,<br>134:18, 135:13<br><b>appliances</b><br>22:19, 23:1,<br>25:3, 25:19,<br>25:20, 25:21,<br>25:22, 26:6,<br>26:9, 27:22,<br>28:12, 28:16,<br>65:6, 66:17,<br>66:19, 67:10,<br>68:8, 68:9,<br>68:11, 68:16,<br>69:1, 70:18,<br>72:14, 133:20,<br>135:10<br><b>application</b><br>5:6, 5:12,<br>30:2, 36:11,<br>63:11, 69:10,<br>73:19, 135:4<br><b>applications</b><br>14:10<br><b>applied</b><br>37:1, 41:12,<br>103:17<br><b>applies</b><br>31:22, 48:10,<br>125:6<br><b>apply</b><br>123:14, 123:20<br><b>appreciate</b><br>100:5, 111:4,<br>137:15<br><b>approximate</b><br>83:7<br><b>approximately</b><br>37:2<br><b>april</b><br>78:20, 79:7,<br>82:16, 82:19,<br>83:8, 83:16,<br>83:18, 83:22,<br>84:18, 85:2,<br>85:8, 86:5,<br>86:20, 87:3, | 87:11, 92:21<br><b>arc</b><br>42:1<br><b>aren't</b><br>22:10<br><b>arguments</b><br>57:14, 58:2<br><b>around</b><br>24:17, 81:4,<br>105:7<br><b>arranged</b><br>68:10<br><b>arrangement</b><br>129:7<br><b>art</b><br>15:20, 35:19,<br>35:22, 44:12,<br>44:14, 45:11,<br>53:7, 53:18,<br>53:22, 54:5,<br>55:5, 55:9,<br>55:10, 55:13,<br>56:9, 56:17,<br>58:3, 58:22,<br>59:8, 62:21,<br>63:20, 65:20,<br>66:1, 71:14,<br>71:17, 71:20,<br>72:19, 72:22,<br>73:9, 73:14,<br>84:19, 91:19,<br>128:17<br><b>articulated</b><br>45:20<br><b>ascertain</b><br>90:4<br><b>asked</b><br>24:4, 32:10,<br>60:21, 61:5,<br>74:13, 82:3,<br>109:13, 110:7,<br>110:8, 137:4<br><b>asking</b><br>15:12, 36:18,<br>58:12, 71:8,<br>71:11, 71:12,<br>82:2, 82:4,<br>84:2, 88:21, | 89:8, 98:2,<br>99:22, 100:20,<br>109:19, 123:8,<br>125:5<br><b>aspects</b><br>38:1<br><b>assemble</b><br>53:22<br><b>assembling</b><br>54:2<br><b>asserted</b><br>53:10<br><b>assisted</b><br>29:6, 31:8,<br>31:11, 32:4<br><b>associated</b><br>47:1<br><b>assume</b><br>8:12, 19:14,<br>119:9<br><b>assuming</b><br>102:10<br><b>attached</b><br>4:14, 138:7<br><b>attorney</b><br>139:21<br><b>attorney-client</b><br>9:13<br><b>attorneys</b><br>17:2, 91:13<br><b>attribute</b><br>128:16<br><b>audible</b><br>7:21<br><b>authority</b><br>125:2<br><b>automobiles</b><br>23:11, 23:12<br><b>auxiliary</b><br>65:8, 70:16,<br>72:15<br><b>availability</b><br>96:9<br><b>available</b><br>66:10, 66:18,<br>68:12, 78:20,<br>81:20, 83:5,<br>83:19, 83:22, | 84:3, 84:8,<br>84:14, 84:17,<br>84:22, 85:6,<br>93:10, 93:12,<br>95:12, 101:18,<br>108:21, 110:4,<br>114:5, 118:18,<br>119:21, 129:14<br><b>avenue</b><br>3:7, 3:15<br><b>avoided</b><br>88:3<br><b>avoids</b><br>73:11<br><b>aware</b><br>52:19, 53:2,<br>73:2, 92:20,<br>93:6, 93:17,<br>93:20, 94:1,<br>100:22, 101:1,<br>111:14, 111:22,<br>113:19, 113:20,<br>113:22, 114:3,<br>114:6, 114:9,<br>124:21, 125:5,<br>125:9<br><b>awareness</b><br>112:4<br><b>away</b><br>30:14, 30:19<br><hr/> <b>B</b><br><hr/> <b>bachelor's</b><br>40:21, 41:3<br><b>back</b><br>7:11, 16:8,<br>17:6, 29:18,<br>32:13, 35:14,<br>48:12, 50:16,<br>56:11, 103:7<br><b>bad</b><br>13:13<br><b>barrier</b><br>45:1<br><b>base</b><br>67:21<br><b>based</b><br>48:7, 58:20, |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 99:13, 121:1<br><b>bases</b><br>25:16, 26:20<br><b>basic</b><br>36:17<br><b>basically</b><br>17:20, 23:17<br><b>basis</b><br>21:22, 55:3,<br>79:13, 79:17,<br>80:20, 82:4<br><b>battery</b><br>19:8<br><b>became</b><br>81:4, 83:22,<br>115:1, 115:8<br><b>because</b><br>12:19, 25:1,<br>25:12, 30:18,<br>40:12, 44:13,<br>47:12, 49:10,<br>56:21, 63:18,<br>71:3, 72:22,<br>73:4, 79:19,<br>94:18, 95:11,<br>97:11, 107:9,<br>108:15, 109:20,<br>110:3, 112:10,<br>112:21, 115:5,<br>121:2, 124:4,<br>124:10, 130:5<br><b>becoming</b><br>85:3<br><b>been</b><br>6:5, 6:15,<br>10:10, 10:19,<br>12:3, 12:19,<br>13:5, 13:12,<br>13:13, 14:21,<br>16:12, 18:11,<br>19:12, 21:2,<br>21:4, 21:21,<br>22:7, 22:13,<br>24:15, 24:20,<br>25:1, 26:14,<br>27:2, 35:18,<br>42:6, 43:8,<br>44:11, 47:14, | 47:19, 50:7,<br>51:17, 61:20,<br>70:21, 78:8,<br>79:8, 79:10,<br>79:14, 79:16,<br>79:22, 80:8,<br>80:12, 80:15,<br>80:18, 81:19,<br>91:3, 91:20,<br>94:22, 95:3,<br>98:7, 99:21,<br>106:21, 108:4,<br>115:18, 116:1,<br>117:11, 119:16,<br>127:17, 128:5,<br>129:17, 134:21<br><b>before</b><br>1:3, 2:11,<br>6:16, 7:6, 7:8,<br>7:15, 10:11,<br>20:1, 21:7,<br>29:12, 42:17,<br>42:21, 54:17,<br>55:18, 84:18,<br>85:2, 92:21,<br>93:8, 108:3,<br>108:4, 110:20,<br>111:9, 111:18,<br>112:7, 112:14,<br>118:6, 122:10,<br>122:17, 129:1,<br>133:14, 139:7,<br>139:9<br><b>began</b><br>85:3, 85:4,<br>85:22<br><b>beginning</b><br>57:1<br><b>begins</b><br>87:20<br><b>behalf</b><br>3:2, 3:11, 19:1<br><b>being</b><br>11:12, 32:12,<br>68:1, 79:1,<br>79:21, 81:14,<br>87:18, 120:22,<br>129:19, 130:18, | 131:2<br><b>believe</b><br>7:8, 11:15,<br>17:13, 19:16,<br>29:13, 29:20,<br>31:8, 48:1,<br>49:15, 51:20,<br>60:3, 60:4,<br>64:4, 76:18,<br>78:19, 83:7,<br>86:3, 89:22,<br>94:19, 96:22,<br>103:11, 115:15,<br>119:15, 131:12<br><b>besides</b><br>77:14, 77:22<br><b>best</b><br>8:2, 8:8, 8:17,<br>74:7<br><b>between</b><br>21:8, 58:9,<br>95:13, 95:17,<br>96:5, 96:7,<br>96:20, 97:4,<br>98:1, 98:3<br><b>beyond</b><br>45:7, 48:20,<br>60:10<br><b>bigger</b><br>88:11<br><b>biggest</b><br>16:7, 88:10<br><b>binder</b><br>17:21<br><b>bit</b><br>7:14, 16:6,<br>32:18, 122:12<br><b>blank</b><br>2:3, 3:6, 48:2,<br>49:14, 139:16<br><b>blood</b><br>139:20<br><b>blowing</b><br>73:7<br><b>board</b><br>1:3, 7:7, 7:16,<br>9:1, 12:20,<br>13:5, 34:15, | 51:18, 81:5,<br>101:10, 108:18,<br>114:12, 115:19<br><b>body</b><br>114:13<br><b>boil</b><br>133:8<br><b>bookstores</b><br>85:21<br><b>boston</b><br>20:19, 21:1,<br>21:4, 40:11,<br>40:17, 80:2,<br>81:15, 97:14,<br>103:22, 113:12<br><b>both</b><br>11:12, 48:17,<br>49:3, 49:7,<br>49:13<br><b>bottom</b><br>64:16, 66:16,<br>88:19, 90:1<br><b>bought</b><br>30:5<br><b>bound</b><br>18:1<br><b>box</b><br>124:17<br><b>brands</b><br>18:21, 19:3<br><b>break</b><br>8:15, 50:9,<br>50:12, 110:17,<br>111:5, 111:9<br><b>breakers</b><br>73:7, 73:12<br><b>breaks</b><br>8:18, 136:7<br><b>bring</b><br>32:8<br><b>broad</b><br>125:12<br><b>broken</b><br>17:15<br><b>buck</b><br>129:10, 129:12<br><b>build</b><br>87:8 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>building</b><br>73:10<br><b>buildings</b><br>132:17<br><b>built</b><br>131:20<br><b>bullet</b><br>108:12, 132:6,<br>132:10, 132:12,<br>132:13<br><b>burn</b><br>30:9, 30:11,<br>33:16<br><b>burned</b><br>30:13<br><b>burning</b><br>69:17, 69:21<br><b>butt</b><br>129:19, 129:22,<br>130:4, 130:5,<br>130:12, 131:1,<br>131:8, 132:8,<br>132:22, 133:18,<br>133:19, 134:8,<br>134:9, 134:11,<br>134:14<br><b>button</b><br>130:2<br><b>buy</b><br>23:4, 134:3<br><b>byron</b><br>3:14 | 115:5, 116:10<br><b>campus</b><br>40:17<br><b>campuses</b><br>40:14<br><b>can't</b><br>15:1, 25:8,<br>25:9, 25:11,<br>27:8, 40:2<br><b>capable</b><br>76:19<br><b>capacitive</b><br>45:6, 45:8<br><b>capacitor</b><br>46:10, 46:12<br><b>capstone</b><br>81:4, 81:7,<br>81:14, 100:13,<br>105:17, 110:13,<br>111:15, 111:19,<br>112:2, 114:5,<br>114:8, 115:6,<br>115:8<br><b>car</b><br>23:18<br><b>case</b><br>1:11, 1:14,<br>10:4, 26:5,<br>26:8, 40:7,<br>59:6, 61:1,<br>70:12, 71:2,<br>71:3, 91:3,<br>91:17, 91:21<br><b>cases</b><br>56:22<br><b>cassette</b><br>23:14, 23:17<br><b>catalog</b><br>83:2<br><b>cataloging</b><br>95:19<br><b>caught</b><br>82:9<br><b>cause</b><br>73:8<br><b>caveat</b><br>105:21<br><b>cavities</b><br>74:15, 133:5 | <b>cavity</b><br>36:17, 36:22,<br>37:5, 37:6,<br>37:12, 37:20,<br>38:8, 70:2,<br>70:3, 73:17,<br>73:22, 74:6,<br>74:19<br><b>censsis</b><br>112:6, 113:6,<br>113:17, 114:1<br><b>census</b><br>112:19<br><b>center</b><br>112:5, 113:6,<br>113:8, 113:11<br><b>certain</b><br>77:4, 101:22<br><b>certainly</b><br>79:10, 121:9<br><b>certificate</b><br>139:1<br><b>certify</b><br>139:4, 139:11,<br>139:14, 139:19<br><b>cetera</b><br>112:12<br><b>chair</b><br>115:5<br><b>challenged</b><br>84:20<br><b>chamber</b><br>37:7, 73:2<br><b>chambers</b><br>38:13<br><b>change</b><br>95:20, 110:5,<br>137:10<br><b>changed</b><br>96:1<br><b>changes</b><br>18:11, 95:20<br><b>characteristics</b><br>121:2, 124:17<br><b>charge</b><br>46:12<br><b>chart</b><br>86:15, 86:16, | 87:3, 87:9<br><b>charts</b><br>59:16, 59:19<br><b>checking</b><br>26:20<br><b>chemical</b><br>77:9<br><b>cherry-picking</b><br>103:14<br><b>chose</b><br>120:21<br><b>chosen</b><br>53:19, 53:22,<br>69:7<br><b>circuit</b><br>34:15, 46:18,<br>73:7, 73:12<br><b>circuitry</b><br>47:1<br><b>citation</b><br>64:5, 67:6,<br>71:4, 71:5,<br>71:6, 71:8,<br>71:12, 72:9,<br>72:11, 94:4,<br>94:9, 95:2,<br>99:19<br><b>citations</b><br>70:8<br><b>cite</b><br>87:2<br><b>cited</b><br>14:21, 15:17<br><b>citing</b><br>67:15<br><b>claim</b><br>43:18, 45:7,<br>51:10, 57:22,<br>59:13, 59:16,<br>59:19<br><b>claimed</b><br>45:13, 59:1,<br>61:13, 71:21<br><b>claims</b><br>43:16, 58:6,<br>59:7<br><b>clarification</b><br>9:19, 39:8 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>clarify</b><br>9:10, 51:3<br><b>class</b><br>37:14, 37:18,<br>38:6, 110:13<br><b>cleaned</b><br>30:19<br><b>clear</b><br>28:1, 35:5,<br>36:16, 47:4,<br>57:6, 111:13<br><b>clearly</b><br>33:7, 46:20,<br>91:20, 102:16<br><b>clerk</b><br>20:15<br><b>clips</b><br>17:21<br><b>close</b><br>37:20, 38:8<br><b>cloud-based</b><br>98:6<br><b>code</b><br>125:3, 125:4,<br>125:6, 125:9,<br>125:14, 125:18<br><b>codes</b><br>125:22<br><b>cold</b><br>37:7<br><b>collaborate</b><br>101:20<br><b>collaboration</b><br>17:1<br><b>collections</b><br>100:9, 101:8<br><b>college</b><br>1:5, 3:2,<br>61:18, 62:2,<br>73:3, 136:16,<br>139:12<br><b>colleges</b><br>62:12, 62:18<br><b>colon</b><br>82:13<br><b>columbia</b><br>2:12, 139:3,<br>140:10 | <b>column</b><br>46:4, 46:13,<br>117:22, 119:19,<br>120:21, 121:3,<br>129:6, 130:16,<br>132:18<br><b>combination</b><br>40:4, 40:10,<br>40:12, 65:16,<br>73:5, 128:22,<br>129:13, 135:13<br><b>combine</b><br>59:5, 59:7,<br>59:11, 63:18,<br>70:10, 71:9<br><b>combo</b><br>73:10<br><b>combustible</b><br>127:9, 127:12<br><b>combustion</b><br>74:10, 76:22<br><b>come</b><br>59:12, 106:17<br><b>coming</b><br>7:11<br><b>comma</b><br>64:20<br><b>commencement</b><br>139:7<br><b>commencing</b><br>139:18<br><b>commentary</b><br>100:5<br><b>commercial</b><br>24:22, 25:20,<br>25:21, 36:19,<br>38:1, 39:14,<br>39:15, 39:16,<br>39:17, 60:14,<br>82:7, 82:14<br><b>commission</b><br>7:9, 140:12<br><b>common</b><br>68:10<br><b>commonly</b><br>66:10, 66:18,<br>68:12<br><b>communities</b><br>100:17 | <b>community</b><br>100:8, 100:11,<br>101:7, 102:20,<br>103:10, 105:8<br><b>company</b><br>22:14, 22:18,<br>23:7, 23:8,<br>26:2, 26:14,<br>27:2, 27:6,<br>27:8, 27:14,<br>27:15, 28:3,<br>31:11, 39:21<br><b>compare</b><br>97:13, 112:11<br><b>complainant</b><br>18:20<br><b>complete</b><br>20:12, 50:5,<br>50:17, 51:1,<br>52:1, 52:3,<br>52:12, 52:13,<br>60:6, 67:2,<br>73:20, 81:7,<br>138:5<br><b>completed</b><br>87:12<br><b>component</b><br>28:20, 37:3,<br>37:4, 67:20<br><b>components</b><br>66:18, 67:10,<br>67:13, 68:16,<br>69:4, 75:22<br><b>compound</b><br>77:12<br><b>compounds</b><br>75:18, 120:19<br><b>compressor</b><br>28:21<br><b>compute</b><br>124:10<br><b>computer</b><br>40:22, 95:21,<br>98:8, 100:13,<br>101:4<br><b>concentration</b><br>118:3, 120:1<br><b>concept</b><br>29:20, 60:13, | 100:4<br><b>concepts</b><br>58:13<br><b>concern</b><br>73:9<br><b>concerned</b><br>19:8<br><b>concerning</b><br>9:8, 9:10<br><b>conclude</b><br>88:13<br><b>concluded</b><br>9:8<br><b>conclusion</b><br>81:18, 121:2<br><b>condition</b><br>69:11<br><b>conditions</b><br>65:11, 66:4,<br>66:7, 70:19,<br>72:16, 126:20,<br>127:5<br><b>condom</b><br>46:15<br><b>conducted</b><br>10:15<br><b>conductive</b><br>43:22<br><b>confidential</b><br>102:1, 102:5,<br>102:6, 102:14,<br>102:17<br><b>confirm</b><br>136:7<br><b>confirmed</b><br>104:5, 104:6,<br>104:8, 104:14,<br>105:3, 105:6<br><b>confirming</b><br>128:3<br><b>conjunction</b><br>119:16<br><b>connected</b><br>37:19, 38:7,<br>130:19<br><b>consider</b><br>35:21, 62:6,<br>95:16, 96:5, |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 96:7, 96:19<br><b>considered</b><br>46:10, 96:17<br><b>consist</b><br>124:4<br><b>consisted</b><br>15:21<br><b>consistent</b><br>124:20<br><b>console</b><br>24:16<br><b>consoles</b><br>23:11, 23:12<br><b>consortium</b><br>101:19, 113:13<br><b>constant</b><br>127:1<br><b>construction</b><br>51:11<br><b>consultant</b><br>22:7, 22:9,<br>22:13, 24:15<br><b>consultation</b><br>24:21<br><b>consultations</b><br>25:2<br><b>consulting</b><br>24:17, 27:1,<br>27:5, 27:13,<br>27:15, 27:17,<br>27:21, 28:3<br><b>consumer</b><br>22:18, 22:19,<br>22:20, 23:3,<br>24:2, 24:5,<br>24:7, 24:9,<br>24:11, 24:12,<br>24:16, 24:22,<br>25:4, 25:19,<br>25:21, 39:18,<br>134:2<br><b>consumer-purchas-<br/>able</b><br>39:22<br><b>consumers</b><br>26:4, 130:6<br><b>consumption</b><br>124:9, 124:18 | <b>contact</b><br>119:7<br><b>contacted</b><br>109:1, 109:5<br><b>contain</b><br>56:6, 56:14,<br>76:8<br><b>contained</b><br>126:9, 133:15,<br>137:9<br><b>contains</b><br>94:4<br><b>content</b><br>49:1, 102:20,<br>103:10<br><b>contention</b><br>45:15<br><b>contentious</b><br>33:7<br><b>context</b><br>28:3, 36:13,<br>44:7, 44:12,<br>44:18, 44:20,<br>45:13, 47:3,<br>58:19, 68:18<br><b>contextual</b><br>123:22<br><b>continues</b><br>18:2<br><b>continuous</b><br>43:21, 44:6,<br>44:17, 44:19,<br>45:7, 45:12,<br>45:16, 46:1,<br>46:16, 46:17,<br>47:4<br><b>continuously</b><br>69:3<br><b>controlled</b><br>127:18, 128:6<br><b>conversations</b><br>10:3<br><b>conversion</b><br>95:4, 95:8,<br>96:15<br><b>converted</b><br>91:9, 95:11<br><b>cooking</b><br>26:9, 28:12, | 28:16, 36:17,<br>36:22, 37:6,<br>70:3, 73:2,<br>74:6, 74:15,<br>74:19<br><b>copied</b><br>61:7<br><b>copper</b><br>42:1<br><b>copy</b><br>12:6, 43:9,<br>90:21, 91:2,<br>115:16, 117:13,<br>129:18, 135:3<br><b>copying</b><br>60:10, 61:1,<br>61:3, 61:8<br><b>corporation</b><br>1:8, 3:11, 6:7,<br>12:1, 20:20,<br>21:8<br><b>corrections</b><br>53:3, 138:6<br><b>correctly</b><br>66:22<br><b>cory</b><br>82:15<br><b>cost</b><br>129:14<br><b>costly</b><br>129:8<br><b>could</b><br>6:9, 23:3,<br>24:9, 24:12,<br>26:2, 29:1,<br>29:18, 29:21,<br>53:17, 54:22,<br>55:15, 56:11,<br>60:5, 60:6,<br>67:3, 74:11,<br>91:10, 92:8,<br>93:10, 93:12,<br>100:11, 101:2,<br>106:21, 108:3,<br>110:5, 120:18,<br>124:10, 124:12,<br>127:17, 128:1,<br>128:4 | <b>couldn't</b><br>88:9, 94:12,<br>110:10<br><b>counsel</b><br>6:7, 8:16, 9:7,<br>9:14, 31:20,<br>48:17, 49:20,<br>54:9, 63:7,<br>63:12, 136:8,<br>136:16, 137:10,<br>139:12<br><b>counsel's</b><br>31:19<br><b>country</b><br>97:12<br><b>couple</b><br>111:13, 136:19<br><b>course</b><br>37:1, 37:3,<br>37:9, 79:6,<br>79:20, 91:21,<br>95:10, 108:22,<br>112:11, 115:7<br><b>court</b><br>7:5, 8:1, 32:1,<br>51:15, 139:2<br><b>cover</b><br>25:16, 35:18,<br>47:15, 47:22,<br>48:9, 48:18,<br>48:19, 50:2,<br>50:5, 86:21<br><b>coverage</b><br>37:13<br><b>covered</b><br>49:7, 60:15,<br>61:2, 61:20,<br>62:7, 62:11,<br>62:17<br><b>covers</b><br>14:10<br><b>create</b><br>101:13<br><b>creating</b><br>45:2, 73:5<br><b>credited</b><br>30:4<br><b>cross</b><br>9:2 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>cumulative</b><br>118:3, 120:1<br><b>curing</b><br>39:1<br><b>current</b><br>18:8, 18:9,<br>43:22, 45:6,<br>45:8, 46:6,<br>46:11, 46:14,<br>46:17, 46:18,<br>46:22, 47:2<br><b>curriculum</b><br>115:9<br><b>cutout</b><br>129:8<br><b>cycle</b><br>28:18<br><b>cycling</b><br>65:7, 66:3,<br>66:6, 70:15,<br>72:14, 72:18,<br>73:11 | 107:9, 115:4,<br>118:21, 121:9,<br>122:16, 138:10<br><b>dated</b><br>85:20, 101:13,<br>121:18<br><b>dates</b><br>79:12<br><b>daughter</b><br>80:10, 81:17,<br>116:12<br><b>day</b><br>140:5<br><b>days</b><br>86:20, 122:17<br><b>dc</b><br>42:10<br><b>decade</b><br>116:2<br><b>decided</b><br>54:9<br><b>deck</b><br>23:17<br><b>decks</b><br>23:14<br><b>declaration</b><br>5:3, 5:14,<br>5:18, 16:13,<br>16:18, 16:21,<br>17:3, 17:16,<br>18:10, 18:12,<br>28:10, 48:10,<br>49:3, 49:14,<br>49:17, 50:17,<br>50:20, 51:9,<br>52:14, 52:16,<br>53:20, 54:10,<br>55:8, 58:4,<br>58:21, 59:20,<br>64:3, 64:7,<br>64:8, 72:13,<br>82:5, 83:11,<br>84:14, 85:1,<br>118:10, 126:10,<br>127:16, 128:4,<br>137:11<br><b>declarations</b><br>10:5, 47:7, | 47:10, 48:6,<br>48:14, 48:22,<br>51:2, 51:7,<br>51:10, 51:21,<br>52:3, 52:8,<br>52:10, 52:20,<br>54:3, 56:6,<br>56:14, 83:12,<br>84:9, 85:7,<br>101:9, 107:22,<br>108:16, 114:18,<br>115:18, 116:5,<br>116:11, 121:7,<br>125:20, 126:4,<br>126:7<br><b>defer</b><br>49:20<br><b>define</b><br>22:1, 22:15,<br>22:17, 24:3,<br>24:11, 39:15,<br>54:4, 85:13<br><b>defined</b><br>39:17<br><b>definitely</b><br>15:2<br><b>definition</b><br>44:15, 45:16,<br>104:2<br><b>definitions</b><br>44:9<br><b>degree</b><br>40:21, 41:3,<br>41:14, 111:20,<br>116:16, 116:17,<br>116:18<br><b>degrees</b><br>133:1, 133:5<br><b>delta</b><br>112:15<br><b>department</b><br>100:12, 115:5<br><b>depend</b><br>75:13<br><b>dependence</b><br>126:21<br><b>deployment</b><br>21:17 | <b>deponent</b><br>138:1<br><b>deposed</b><br>6:16, 6:18<br><b>deposition</b><br>1:17, 2:1,<br>4:15, 4:17, 6:2,<br>7:13, 9:7,<br>10:15, 10:20,<br>11:4, 11:11,<br>19:20, 41:22,<br>42:9, 43:5,<br>43:9, 125:15,<br>136:3, 139:6,<br>139:8, 139:13,<br>139:14<br><b>depositions</b><br>9:6<br><b>des</b><br>3:16<br><b>described</b><br>40:20, 46:20,<br>66:20, 67:11,<br>68:17, 79:19,<br>127:7, 129:15,<br>130:15<br><b>describes</b><br>83:20, 101:16,<br>119:22<br><b>describing</b><br>39:11<br><b>description</b><br>81:12, 87:7,<br>99:13, 101:12<br><b>design</b><br>36:4, 36:8,<br>36:10, 36:18,<br>37:9, 37:11,<br>37:22, 38:11,<br>38:22, 39:14,<br>41:19, 66:10,<br>66:17, 68:12,<br>79:5, 79:6,<br>87:6, 91:18,<br>91:19<br><b>designate</b><br>99:12, 100:1<br><b>designated</b><br>50:20 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>designation</b><br>48:19<br><b>designed</b><br>36:2, 36:14,<br>36:16, 40:3,<br>40:5, 112:10<br><b>designing</b><br>27:3, 70:20,<br>73:10<br><b>detail</b><br>45:20<br><b>detailed</b><br>101:12<br><b>detect</b><br>41:22, 75:17,<br>75:21, 76:6,<br>76:9, 77:2,<br>77:17, 77:19,<br>77:20, 77:21,<br>77:22, 78:2,<br>78:5, 120:19<br><b>detected</b><br>34:16, 46:18<br><b>detecting</b><br>44:22, 76:20<br><b>detector</b><br>33:19, 33:22,<br>39:3, 73:15,<br>77:22, 78:5,<br>82:7, 82:14,<br>131:9, 131:17,<br>131:20, 132:7,<br>132:9, 132:22,<br>134:10<br><b>detectors</b><br>132:5, 133:14,<br>137:6<br><b>determine</b><br>37:5<br><b>determining</b><br>127:3<br><b>device</b><br>26:1, 45:3,<br>87:8, 131:18,<br>137:2<br><b>devices</b><br>28:13, 73:10<br><b>diagnoses</b><br>32:11 | <b>difference</b><br>58:9, 98:3<br><b>differences</b><br>95:13, 95:17,<br>96:5, 96:7,<br>96:11, 96:18,<br>96:20, 96:22,<br>97:2, 99:7<br><b>different</b><br>53:11, 105:1,<br>118:12, 130:10<br><b>differently</b><br>11:16<br><b>digital</b><br>82:22, 91:9,<br>92:5<br><b>dimensionalities</b><br>68:13<br><b>dimensionality</b><br>67:17<br><b>dimensions</b><br>37:11<br><b>disabled</b><br>88:16, 89:4<br><b>discern</b><br>127:2<br><b>disclose</b><br>65:5, 69:12,<br>70:15, 72:13,<br>117:18, 131:1,<br>134:9, 134:11,<br>134:14<br><b>disclosed</b><br>70:22, 129:12,<br>130:4, 130:12,<br>133:18, 134:8<br><b>discloses</b><br>57:21, 130:1<br><b>disclosure</b><br>128:10<br><b>discovered</b><br>15:9, 29:21,<br>63:6<br><b>discuss</b><br>70:4, 96:10,<br>115:11, 115:22,<br>134:17<br><b>discussed</b><br>15:11, 15:18, | 53:1, 62:10,<br>62:16, 63:5,<br>103:11, 137:6<br><b>discussion</b><br>16:10, 54:8,<br>87:15<br><b>discussions</b><br>96:13, 112:9<br><b>display</b><br>46:19<br><b>displayed</b><br>46:19<br><b>dissertation</b><br>42:7<br><b>distinction</b><br>22:5, 98:1<br><b>district</b><br>2:12, 7:5,<br>51:14, 139:3,<br>140:10<br><b>divided</b><br>124:14<br><b>dividing</b><br>124:13<br><b>doctoral</b><br>80:10<br><b>document</b><br>10:13, 11:3,<br>17:6, 17:10,<br>17:13, 17:19,<br>17:20, 47:22,<br>50:1, 50:4,<br>78:14, 78:16,<br>78:18, 78:20,<br>78:22, 79:5,<br>79:9, 79:15,<br>81:8, 81:19,<br>85:3, 86:8,<br>86:11, 87:12,<br>87:14, 91:6,<br>92:1, 92:21,<br>93:7, 94:3,<br>94:6, 94:14,<br>94:17, 94:22,<br>95:6, 95:9,<br>96:9, 98:1,<br>101:16, 103:5,<br>103:12, 106:16, | 106:21, 107:10,<br>107:12, 107:17,<br>107:19, 107:20,<br>108:3, 108:6,<br>112:6, 112:13,<br>112:14, 114:6,<br>114:9, 115:13,<br>115:17, 122:3,<br>127:8<br><b>documents</b><br>14:13, 48:8,<br>49:8, 49:21,<br>56:4, 83:2,<br>91:2, 99:8,<br>99:12, 99:18,<br>109:15, 114:4,<br>114:20, 116:7,<br>118:22, 119:4<br><b>doing</b><br>35:5, 49:18<br><b>done</b><br>25:5, 26:13,<br>27:1, 27:5,<br>27:13, 27:15,<br>27:21, 28:1,<br>29:16, 40:2,<br>67:1, 90:3,<br>93:2, 109:12<br><b>doors</b><br>68:9, 68:14,<br>69:9<br><b>dorm</b><br>40:14, 73:8<br><b>dormitories</b><br>73:4, 73:6<br><b>dormitory</b><br>73:6<br><b>dorms</b><br>62:13<br><b>down</b><br>33:16<br><b>download</b><br>93:14<br><b>downloaded</b><br>92:20, 93:2,<br>93:7, 93:11,<br>93:12<br><b>downloading</b><br>93:18 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>downloads</b><br>108:8, 108:14,<br>109:3, 109:15<br><b>dr</b><br>136:20<br><b>draft</b><br>47:21, 48:6,<br>48:13<br><b>draw</b><br>124:22<br><b>drs</b><br>89:21, 90:8,<br>92:6, 92:9,<br>92:16, 93:8,<br>93:19, 94:5,<br>94:10, 94:13,<br>94:18, 94:21,<br>95:4, 95:8,<br>95:11, 95:13,<br>95:17, 96:2,<br>96:5, 96:15,<br>96:20, 97:5,<br>97:19, 98:8,<br>99:8, 117:2<br><b>duly</b><br>6:5, 139:7<br><b>dumb</b><br>133:20, 133:22,<br>134:5<br><b>during</b><br>87:18, 88:6,<br>88:7, 91:16,<br>136:7<br><b>dust</b><br>42:9 | 101:20<br><b>earlier</b><br>18:15, 18:17,<br>19:16, 34:2,<br>53:1, 63:5,<br>116:13<br><b>early</b><br>29:11<br><b>easier</b><br>117:6<br><b>east</b><br>3:15<br><b>easy</b><br>108:11<br><b>ed</b><br>137:1<br><b>effective</b><br>84:18<br><b>effort</b><br>110:1, 110:3<br><b>efforts</b><br>61:19, 62:3<br><b>eight</b><br>37:2<br><b>either</b><br>14:22, 26:2,<br>28:8, 61:6,<br>93:19<br><b>electrical</b><br>40:21, 41:4,<br>41:6, 65:8,<br>68:22, 70:16,<br>72:15, 100:12,<br>123:16, 124:17<br><b>electrically</b><br>43:22<br><b>electrodes</b><br>124:5<br><b>electromagnetics</b><br>37:2, 41:12<br><b>electronically</b><br>127:18, 128:5<br><b>electronics</b><br>32:22<br><b>element</b><br>43:18, 43:19,<br>44:3, 45:7,<br>122:7, 122:9, | 122:21<br><b>elements</b><br>57:21, 59:12,<br>124:4<br><b>eliminates</b><br>129:7, 129:9<br><b>else</b><br>19:22, 54:12<br><b>emanated</b><br>87:18<br><b>embodiment</b><br>68:1, 119:19,<br>119:20, 130:4,<br>130:10, 130:11<br><b>emma</b><br>63:15, 63:17,<br>63:18, 65:2,<br>65:4, 65:5,<br>65:9, 65:22,<br>66:5, 66:9,<br>66:12, 67:9,<br>67:12, 69:3,<br>69:6, 69:12,<br>69:22, 70:6,<br>70:10, 70:14,<br>70:15, 70:18,<br>70:20, 71:3,<br>71:4, 71:9,<br>71:13, 71:18,<br>71:19, 71:22,<br>72:6, 72:9,<br>72:13, 73:11,<br>73:16, 73:18,<br>73:19, 74:5,<br>74:13, 74:14,<br>74:17, 75:2<br><b>emma's</b><br>63:19, 64:11,<br>64:18, 67:6<br><b>employed</b><br>21:19, 21:20,<br>21:21, 22:1,<br>139:21<br><b>employee</b><br>22:9<br><b>employment</b><br>20:10, 20:12,<br>20:13 | <b>end</b><br>117:7, 118:1<br><b>ends</b><br>43:15<br><b>energy</b><br>21:16, 21:17,<br>37:4<br><b>engaged</b><br>90:9<br><b>engagements</b><br>22:6<br><b>engine</b><br>118:22, 119:1<br><b>engineer</b><br>36:6<br><b>engineering</b><br>36:8, 36:10,<br>36:11, 40:22,<br>41:4, 41:7,<br>81:6, 87:4,<br>100:13, 111:19,<br>114:12, 114:14,<br>116:22, 118:7,<br>119:22, 123:17<br><b>engineers</b><br>112:1<br><b>enough</b><br>26:18<br><b>ensure</b><br>37:12<br><b>ensuring</b><br>68:21<br><b>entire</b><br>15:13, 128:19<br><b>entirety</b><br>15:13, 55:6,<br>86:12, 132:1<br><b>enumerated</b><br>121:3<br><b>equivalent</b><br>46:10<br><b>ergonomic</b><br>68:6<br><b>errata</b><br>138:7<br><b>errors</b><br>52:19, 53:3<br><b>esquire</b><br>3:4, 3:5, 3:12, |
| <b>E</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>e-mail</b><br>108:7, 108:13,<br>108:19, 109:18,<br>109:22<br><b>e-mails</b><br>108:21, 109:3,<br>109:6, 109:8,<br>109:11, 109:14,<br>109:17, 110:7<br><b>each</b><br>32:2, 54:14,                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3:13<br><b>essentially</b><br>9:2, 11:2,<br>22:8, 38:14<br><b>estimate</b><br>124:19<br><b>et</b><br>82:15, 112:12<br><b>evaluate</b><br>60:14, 60:22,<br>61:12<br><b>evaluation</b><br>61:5<br><b>even</b><br>31:3, 73:16,<br>87:20, 98:11,<br>110:7<br><b>ever</b><br>6:15, 22:13,<br>23:1, 26:14,<br>30:9, 34:4,<br>36:14, 37:17,<br>38:5, 38:15,<br>80:15, 98:11,<br>110:12, 116:8,<br>133:8<br><b>every</b><br>16:2, 76:12,<br>76:17, 104:19<br><b>everybody</b><br>104:11, 104:12<br><b>everyone</b><br>84:3, 104:19<br><b>everything</b><br>83:21<br><b>everywhere</b><br>104:20<br><b>evidence</b><br>105:11, 105:16<br><b>exact</b><br>83:18, 90:4,<br>92:11, 130:17<br><b>exactly</b><br>6:20<br><b>examination</b><br>4:2, 6:7, 9:2,<br>136:16<br><b>examined</b><br>6:5, 138:3 | <b>examiner</b><br>15:9<br><b>examiner's</b><br>16:2<br><b>example</b><br>14:11, 79:12,<br>95:21<br><b>examples</b><br>29:8<br><b>exceed</b><br>133:5, 133:11,<br>133:12<br><b>except</b><br>50:2<br><b>exception</b><br>8:17, 48:9<br><b>excuse</b><br>82:9, 88:12,<br>107:15, 127:19<br><b>exemplary</b><br>131:9<br><b>exercise</b><br>37:8, 37:22<br><b>exhibit</b><br>4:15, 4:17,<br>4:19, 5:2, 5:3,<br>5:6, 5:8, 5:10,<br>5:11, 5:12,<br>5:14, 5:18, 6:2,<br>10:11, 10:20,<br>12:4, 12:15,<br>13:2, 13:14,<br>13:16, 16:7,<br>16:13, 43:5,<br>43:9, 47:14,<br>49:11, 49:12,<br>50:18, 51:22,<br>52:1, 53:5,<br>55:4, 55:6,<br>55:7, 55:8,<br>55:14, 55:18,<br>55:20, 56:21,<br>58:21, 59:20,<br>63:4, 63:14,<br>64:10, 66:15,<br>78:8, 80:18,<br>82:6, 85:11,<br>86:4, 91:7, | 91:11, 91:20,<br>94:4, 95:7,<br>95:10, 101:12,<br>106:1, 106:2,<br>107:16, 107:22,<br>111:11, 111:15,<br>112:16, 117:12,<br>118:11, 122:15,<br>126:10, 126:11,<br>127:16, 129:17,<br>131:13, 131:19,<br>133:15, 133:16,<br>135:1, 136:21<br><b>exhibits</b><br>5:1, 10:9,<br>13:1, 52:11,<br>91:3, 134:22<br><b>exist</b><br>94:13, 107:10,<br>108:1<br><b>existed</b><br>108:3<br><b>existing</b><br>120:11<br><b>exists</b><br>118:16<br><b>expensive</b><br>130:7<br><b>expert</b><br>18:13, 35:16,<br>71:7, 90:10<br><b>expires</b><br>140:12<br><b>explain</b><br>32:10, 84:3<br><b>explained</b><br>32:11, 76:18,<br>111:18<br><b>explanation</b><br>45:19<br><b>explicitly</b><br>71:3, 131:7,<br>134:9<br><b>expressed</b><br>84:8, 84:14<br><b>extent</b><br>103:14<br><b>eye</b><br>2:4, 139:16 | <b>F</b><br><b>face</b><br>83:17<br><b>facilitated</b><br>127:17, 128:5<br><b>fact</b><br>41:6, 70:5,<br>73:8, 88:7,<br>88:10, 88:13,<br>94:8, 99:14,<br>105:3, 105:6,<br>134:11<br><b>faculty</b><br>112:8<br><b>fahrenheit</b><br>133:2, 133:6<br><b>fails</b><br>65:4, 70:14<br><b>failures</b><br>61:11, 61:12<br><b>fair</b><br>8:13, 8:19,<br>11:9, 15:4,<br>17:9, 21:18,<br>26:18, 30:18,<br>39:13, 40:3,<br>49:19, 56:5,<br>56:13, 57:13,<br>59:19, 62:10,<br>74:13, 74:17,<br>90:9, 91:16,<br>92:12, 94:5,<br>95:6, 95:16,<br>96:4, 105:15,<br>107:8, 107:22,<br>108:15, 115:17,<br>117:9, 121:12,<br>121:14, 121:16,<br>131:1, 133:4,<br>133:13, 134:7<br><b>fairly</b><br>125:12<br><b>false</b><br>82:17, 86:7,<br>86:10<br><b>familiar</b><br>32:21, 60:12, |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 80:11, 81:14<br><b>familiarity</b><br>40:6, 40:9<br><b>faulty</b><br>32:12<br><b>feature</b><br>34:16, 103:15,<br>103:16, 114:7,<br>117:18, 118:21<br><b>features</b><br>35:10, 65:20,<br>66:10, 66:17,<br>68:12, 71:21,<br>120:6, 120:9,<br>120:11<br><b>february</b><br>106:5, 106:8,<br>106:14, 106:19,<br>106:22, 107:9,<br>108:4<br><b>few</b><br>7:12, 10:9<br><b>fifty-one</b><br>82:11<br><b>figaro</b><br>118:7, 118:15,<br>118:17, 119:4,<br>119:7, 119:22,<br>120:11, 120:17<br><b>figure</b><br>49:9, 119:20,<br>119:21, 130:15<br><b>file</b><br>14:6, 15:7,<br>15:11, 15:18,<br>15:19, 49:2<br><b>filed</b><br>13:5, 30:3,<br>51:18, 55:6,<br>55:7, 122:4<br><b>filing</b><br>49:22, 84:18<br><b>final</b><br>16:22, 111:21<br><b>financially</b><br>140:1<br><b>find</b><br>67:12, 69:2, | 71:8, 73:14,<br>83:13, 90:14,<br>112:22, 120:11,<br>124:7, 124:12<br><b>finding</b><br>90:16<br><b>fine</b><br>12:22<br><b>finished</b><br>86:19, 87:10<br><b>fire</b><br>27:12, 27:16,<br>27:18, 33:9,<br>33:11, 33:12,<br>33:14, 33:16,<br>73:13, 73:17,<br>73:21, 74:1,<br>74:3, 74:9,<br>74:11, 77:19,<br>77:20<br><b>fires</b><br>70:1, 70:3,<br>73:2, 73:5,<br>73:8, 74:5,<br>74:14, 129:1<br><b>first</b><br>14:12, 29:9,<br>29:14, 30:5,<br>33:21, 34:1,<br>37:14, 47:13,<br>54:21, 56:4,<br>76:15, 88:4,<br>88:8, 88:20,<br>91:22, 98:7,<br>118:1, 122:13,<br>129:19, 132:6,<br>136:5<br><b>firsthand</b><br>112:9<br><b>fit</b><br>17:21<br><b>five</b><br>53:11, 55:3,<br>55:5, 85:18,<br>124:11, 124:19<br><b>five-minute</b><br>50:12<br><b>floor</b><br>68:3 | <b>flow</b><br>43:22, 46:11,<br>46:17, 46:18<br><b>flowing</b><br>46:7, 47:3<br><b>flyer</b><br>106:3<br><b>focal</b><br>53:20, 66:2<br><b>focus</b><br>41:9, 65:2,<br>65:22<br><b>focused</b><br>37:22, 66:5<br><b>focusing</b><br>98:21<br><b>follow</b><br>114:15<br><b>follow-up</b><br>137:14<br><b>follows</b><br>6:5, 46:9<br><b>food</b><br>69:16, 69:20<br><b>foodstuffs</b><br>30:3, 39:6,<br>39:10, 39:12<br><b>footnote</b><br>94:15<br><b>foregoing</b><br>138:4<br><b>form</b><br>7:21, 10:5,<br>28:7, 31:14,<br>33:1, 34:18,<br>38:18, 39:19,<br>45:18, 48:15,<br>55:3, 56:10,<br>58:7, 60:17,<br>61:22, 62:14,<br>66:21, 67:14,<br>69:5, 72:2,<br>72:10, 77:5,<br>81:3, 83:6,<br>84:11, 86:9,<br>90:22, 91:9,<br>91:10, 92:14,<br>102:12, 104:7, | 107:2, 109:4,<br>117:19, 120:13,<br>123:1, 130:21,<br>133:21<br><b>formal</b><br>113:11<br><b>forms</b><br>102:14<br><b>formulating</b><br>55:8<br><b>forth</b><br>139:6<br><b>forward</b><br>49:10, 71:14,<br>71:18, 71:19<br><b>found</b><br>70:20, 89:8,<br>89:14, 89:18,<br>89:19, 94:22,<br>120:17<br><b>four</b><br>117:7<br><b>fredrikson</b><br>3:14<br><b>frequently</b><br>40:13<br><b>fridge</b><br>69:8<br><b>friends</b><br>29:6, 31:1<br><b>front</b><br>8:22, 34:22,<br>35:3, 47:22,<br>50:17, 51:21,<br>52:10, 85:19<br><b>full</b><br>22:4, 118:1<br><b>full-time</b><br>20:19, 21:20,<br>21:22<br><b>function</b><br>88:16, 89:4,<br>127:17<br><b>functional</b><br>108:12<br><b>functionalities</b><br>63:21, 64:1,<br>64:20, 65:13, |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 65:14, 66:2,<br>67:9, 70:22,<br>71:15, 72:5<br><b>functionality</b><br>65:6, 65:7,<br>66:6, 70:15,<br>72:14, 120:3,<br>128:4, 128:17<br><b>functions</b><br>72:18<br><b>further</b><br>63:21, 63:22,<br>64:19, 65:12,<br>67:8, 90:3,<br>137:13, 139:11,<br>139:14, 139:19 | <b>generated</b><br>121:5<br><b>generator</b><br>46:22, 47:5<br><b>getting</b><br>10:9, 100:18,<br>116:15, 129:5<br><b>give</b><br>124:15, 135:21<br><b>given</b><br>18:14, 63:6,<br>63:12, 84:15,<br>89:16, 89:19,<br>99:19, 138:6,<br>139:10<br><b>gives</b><br>124:11<br><b>giving</b><br>11:3<br><b>go</b><br>7:12, 16:1,<br>16:9, 48:12,<br>53:5, 74:1,<br>78:7, 88:10,<br>90:13, 103:7,<br>110:19, 110:20,<br>111:5, 126:17,<br>135:2<br><b>goal</b><br>36:12, 128:22<br><b>goes</b><br>28:20, 68:7<br><b>going</b><br>7:12, 7:19,<br>7:20, 8:2, 8:12,<br>10:9, 10:19,<br>11:3, 12:3,<br>12:7, 13:12,<br>13:18, 16:6,<br>16:8, 31:19,<br>32:1, 32:16,<br>34:3, 35:17,<br>36:13, 39:16,<br>47:13, 49:12,<br>50:3, 50:7,<br>104:17, 113:20,<br>117:11, 118:21,<br>124:3, 134:21 | <b>gold</b><br>110:5<br><b>good</b><br>12:22, 25:18,<br>133:10<br><b>google</b><br>119:2, 119:3<br><b>government</b><br>102:15<br><b>graduate</b><br>80:3, 116:16,<br>116:17, 116:18<br><b>graduation</b><br>20:13<br><b>grand</b><br>3:15<br><b>grant</b><br>5:16, 5:20,<br>7:16, 9:1, 9:6,<br>11:7, 11:12,<br>11:17, 11:21,<br>13:15, 47:7,<br>47:8, 47:15,<br>48:1, 48:11,<br>49:3, 49:14,<br>51:5, 51:8,<br>51:13, 52:17,<br>54:19, 56:8,<br>56:16, 57:15,<br>57:19, 58:3,<br>64:10, 113:12,<br>114:19, 125:21<br><b>grants</b><br>102:16<br><b>great</b><br>8:6<br><b>grocery</b><br>20:15<br><b>grounds</b><br>54:1<br><b>guaranteeing</b><br>69:10<br><b>guess</b><br>48:11, 67:5,<br>98:9<br><b>guessing</b><br>81:21, 81:22<br><b>guideline</b><br>115:21 | <b>guidelines</b><br>114:11, 115:2<br><hr/> <b>H</b> <hr/> <b>half</b><br>67:16<br><b>hand</b><br>10:10, 10:19,<br>12:3, 13:12,<br>13:13, 47:13,<br>117:11, 121:21,<br>134:21, 140:4<br><b>handed</b><br>16:12, 43:8,<br>78:7, 79:8,<br>79:14<br><b>handle</b><br>94:9<br><b>hands</b><br>8:2, 31:22<br><b>happened</b><br>98:5<br><b>hard</b><br>130:6<br><b>hard-wired</b><br>33:19<br><b>hdl</b><br>94:9<br><b>head</b><br>25:8<br><b>heading</b><br>53:6<br><b>hear</b><br>131:4<br><b>heard</b><br>19:14, 112:9<br><b>hearing</b><br>20:1<br><b>heater</b><br>124:5, 124:8,<br>124:11, 124:18<br><b>heating</b><br>122:7, 122:9,<br>122:21<br><b>heaviest</b><br>67:20<br><b>heavy</b><br>32:6 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>height</b><br>68:2<br><b>held</b><br>2:1<br><b>help</b><br>32:9<br><b>helped</b><br>39:13<br><b>here</b><br>15:3, 20:9,<br>25:5, 25:10,<br>25:16, 45:17,<br>52:2, 52:12,<br>66:20, 78:7,<br>83:3, 86:2,<br>92:19, 93:6,<br>93:17, 104:10,<br>106:11, 107:9,<br>135:2<br><b>here's</b><br>47:20, 63:4<br><b>hereby</b><br>138:2, 139:4<br><b>herein</b><br>67:11<br><b>hereinbefore</b><br>139:6<br><b>hereunto</b><br>140:4<br><b>high</b><br>20:15<br><b>high-voltage</b><br>42:10<br><b>higher</b><br>122:12<br><b>highly</b><br>39:3, 108:12<br><b>himself</b><br>32:8<br><b>histories</b><br>14:6, 15:7<br><b>history</b><br>15:12, 15:18,<br>15:19, 20:10,<br>20:12, 20:13<br><b>holding</b><br>91:1, 127:1<br><b>hole</b><br>47:2 | <b>holes</b><br>46:14<br><b>home</b><br>16:8, 23:4,<br>24:9, 24:13,<br>33:22, 39:18<br><b>honestly</b><br>54:20<br><b>honeywell</b><br>137:1<br><b>horenstein</b><br>1:17, 2:1, 4:2,<br>5:4, 5:15, 5:19,<br>6:4, 6:11, 6:12,<br>6:15, 10:10,<br>10:20, 16:14,<br>136:5, 136:20,<br>137:15, 138:2,<br>139:5, 139:15<br><b>horizon</b><br>18:20, 19:3<br><b>hosted</b><br>79:1, 98:8<br><b>hosting</b><br>98:2, 98:4<br><b>hour</b><br>50:8<br><b>house</b><br>33:12, 33:15<br><b>houston</b><br>3:8<br><b>however</b><br>45:4, 67:2<br><b>http</b><br>94:9<br><b>humidity</b><br>126:14, 126:19,<br>126:21, 127:2,<br>127:5, 129:13<br><b>hundred</b><br>133:1, 133:5,<br>133:11<br><hr/> <b>I</b><br><hr/> <b>ib</b><br>20:15<br><b>idea</b><br>93:1 | <b>identically</b><br>49:7<br><b>identification</b><br>6:3, 43:6<br><b>identified</b><br>53:21<br><b>identify</b><br>54:7<br><b>identifying</b><br>54:8<br><b>illustrative</b><br>119:20<br><b>imaging</b><br>113:7, 113:9<br><b>implement</b><br>73:15<br><b>implementation</b><br>41:19, 97:4,<br>128:13<br><b>improve</b><br>67:12, 69:3,<br>73:1<br><b>improvement</b><br>97:3<br><b>improving</b><br>65:9, 65:15,<br>70:17<br><b>inc</b><br>1:5, 3:2,<br>136:16, 139:12<br><b>inches</b><br>68:3<br><b>incidental</b><br>112:22<br><b>include</b><br>37:19, 38:7,<br>38:16, 94:12,<br>106:22, 108:16,<br>121:6<br><b>included</b><br>37:18, 38:6,<br>59:20, 102:15<br><b>includes</b><br>49:13, 75:22,<br>86:14, 94:18,<br>128:20, 131:9<br><b>including</b><br>46:1, 64:20,<br>74:18 | <b>incomplete</b><br>48:18<br><b>incorporation</b><br>135:9<br><b>incorrect</b><br>63:9, 120:14,<br>120:15<br><b>increased</b><br>88:15, 89:3,<br>106:12<br><b>independent</b><br>48:13<br><b>indicate</b><br>83:14<br><b>indicated</b><br>13:4, 120:7<br><b>indicates</b><br>82:20, 83:16<br><b>indicative</b><br>124:7<br><b>indicia</b><br>60:1, 60:12,<br>60:13<br><b>industrial</b><br>25:2, 25:20,<br>26:4, 38:13,<br>38:17, 39:1<br><b>industry</b><br>21:19, 21:21,<br>32:22, 38:10,<br>38:12, 38:15,<br>62:7, 68:5<br><b>inevitably</b><br>45:8<br><b>info</b><br>12:14<br><b>information</b><br>100:19, 102:15,<br>103:1, 137:9<br><b>informed</b><br>19:12<br><b>inherent</b><br>114:7<br><b>initial</b><br>46:21<br><b>initially</b><br>46:6 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>inside</b><br>37:12, 131:2,<br>131:5, 134:10<br><b>install</b><br>130:6<br><b>installation</b><br>39:2<br><b>installed</b><br>33:22<br><b>instances</b><br>73:4<br><b>instead</b><br>119:9<br><b>institutional</b><br>113:5<br><b>instruction</b><br>37:18, 38:6<br><b>insulators</b><br>42:11<br><b>integral</b><br>34:10<br><b>integrate</b><br>130:7<br><b>integrated</b><br>82:7, 82:13<br><b>intellectual</b><br>6:22, 101:18,<br>103:2<br><b>intend</b><br>87:7<br><b>intended</b><br>49:21<br><b>intent</b><br>49:2<br><b>inter</b><br>5:5, 16:15,<br>52:14, 55:12,<br>55:17, 56:7,<br>56:16, 57:4,<br>57:10<br><b>interactions</b><br>112:7<br><b>interested</b><br>140:1<br><b>interference</b><br>88:5<br><b>internal</b><br>26:3, 66:18, | 67:10, 67:12,<br>68:16, 69:4<br><b>international</b><br>7:9<br><b>internet</b><br>90:13<br><b>interpret</b><br>53:17<br><b>interrupting</b><br>12:21<br><b>intirion</b><br>1:8, 3:11, 6:7,<br>12:1, 55:11,<br>55:16, 56:7,<br>56:15, 60:15<br><b>intirion's</b><br>35:17<br><b>invalidity</b><br>54:1<br><b>invented</b><br>29:13, 29:19<br><b>inventing</b><br>30:4<br><b>invention</b><br>45:14, 58:19,<br>60:10, 71:21,<br>135:15<br><b>inventions</b><br>59:1, 61:2,<br>61:13, 61:16,<br>62:7, 62:17<br><b>inventor</b><br>42:12, 43:13,<br>117:14, 135:5<br><b>inventor's</b><br>129:19<br><b>inverse</b><br>75:21, 76:15<br><b>investigate</b><br>61:8<br><b>investigation</b><br>90:3<br><b>involve</b><br>11:22, 65:14,<br>84:4<br><b>involved</b><br>24:21, 26:14,<br>39:4, 45:2, | 53:13, 54:4,<br>61:1, 116:1<br><b>involving</b><br>25:2, 27:18,<br>28:4, 58:2, 66:2<br><b>ion</b><br>46:21, 47:5<br><b>ions</b><br>45:2, 45:3,<br>46:9, 46:15<br><b>iowa</b><br>3:16<br><b>iprs</b><br>50:20<br><b>iris</b><br>78:12, 79:1,<br>79:10, 79:16,<br>80:19, 80:22,<br>81:11, 81:13,<br>82:22, 83:1,<br>83:17, 83:21,<br>84:1, 84:2,<br>89:20, 92:6,<br>92:9, 92:13,<br>92:16, 93:8,<br>93:19, 94:6,<br>94:14, 94:18,<br>95:1, 95:14,<br>95:17, 96:5,<br>96:15, 96:20,<br>97:7, 97:10,<br>97:16, 97:18,<br>97:20, 98:7,<br>98:12, 98:14,<br>98:17, 98:22,<br>99:3, 99:8,<br>99:11, 99:14,<br>99:17, 100:1,<br>100:4, 100:8,<br>100:16, 101:6,<br>101:7, 101:13,<br>102:22, 103:15,<br>106:3, 106:8,<br>106:14, 106:18,<br>108:7, 108:11,<br>111:10, 113:4,<br>117:2<br><b>isdu</b><br>64:20, 70:10, | 71:1, 82:13,<br>82:20, 83:4,<br>83:15, 84:7,<br>84:13, 84:16,<br>84:22, 85:5,<br>87:6, 89:13,<br>96:2, 107:19,<br>108:19, 109:3,<br>109:9, 109:15,<br>110:13, 111:10,<br>111:14, 114:1<br><b>ish</b><br>32:17<br><b>issue</b><br>54:18, 57:19,<br>88:6<br><b>isu</b><br>82:6<br><b>itc</b><br>7:8, 18:16,<br>19:5, 19:10,<br>20:2<br><b>item</b><br>87:4<br><b>itself</b><br>17:19, 67:9,<br>127:3<br><hr/> <b>J</b><br><hr/> <b>job</b><br>1:20, 38:22,<br>71:17<br><b>jobs</b><br>20:19, 25:1<br><b>johnson</b><br>3:12, 4:3, 6:8,<br>9:20, 10:1,<br>11:1, 16:11,<br>31:15, 43:7,<br>50:7, 50:11,<br>50:15, 77:6,<br>110:16, 110:19,<br>110:22, 111:4,<br>111:8, 123:2,<br>130:22, 135:21,<br>136:4, 136:12,<br>137:14<br><b>joined</b><br>136:3 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                           |                                                                                                                                                                                     |                                                                                                                                            |                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| <b>joint</b><br>112:5                                                                                                                                                                                                                                                     | 93:5, 93:10,<br>93:13, 93:20,<br>95:13, 99:22,<br>100:3, 106:16,<br>110:4, 110:9,<br>115:1, 115:21,<br>117:1, 122:20,<br>123:3, 123:8,<br>123:17, 123:19,<br>124:1, 124:8,<br>134:4 | <b>least</b><br>29:11, 40:21,<br>41:3, 72:8,<br>106:16                                                                                     | 67:17, 69:8,<br>88:15, 89:3,<br>90:4, 118:2,<br>119:19, 120:20,<br>124:16, 129:6                                 |
| <b>july</b><br>140:13                                                                                                                                                                                                                                                     |                                                                                                                                                                                     | <b>left</b><br>121:21                                                                                                                      | <b>link</b>                                                                                                      |
| <b>jump</b><br>19:8                                                                                                                                                                                                                                                       |                                                                                                                                                                                     | <b>left-hand</b><br>108:9                                                                                                                  | 94:5, 94:10,<br>94:12, 94:18,<br>94:21                                                                           |
| <b>jump-starting</b><br>19:9                                                                                                                                                                                                                                              |                                                                                                                                                                                     | <b>legal</b><br>58:15                                                                                                                      | <b>list</b>                                                                                                      |
| <b>june</b><br>1:19, 17:9,<br>55:6, 139:17,<br>140:5                                                                                                                                                                                                                      | <b>knowledge</b><br>28:11, 28:15,<br>73:13, 93:11,<br>103:20                                                                                                                        | <b>legs</b><br>50:12                                                                                                                       | 18:13, 20:9,<br>60:6, 120:17,<br>121:5, 121:9                                                                    |
| <b>K</b>                                                                                                                                                                                                                                                                  |                                                                                                                                                                                     | <b>less</b><br>95:21                                                                                                                       | <b>listed</b>                                                                                                    |
| <b>karen</b><br>1:22, 2:11,<br>139:2                                                                                                                                                                                                                                      | <b>known</b><br>66:19, 67:10,<br>68:17, 72:5                                                                                                                                        | <b>let's</b><br>16:5, 16:9,<br>44:10, 47:12,<br>50:11, 53:5,<br>62:21, 78:6,<br>80:10, 80:14,<br>97:22, 110:19,<br>111:5, 129:16,<br>137:6 | 14:10, 14:12,<br>14:21, 16:2,<br>22:10, 25:13,<br>27:9, 55:13,<br>55:18, 55:19,<br>57:4, 85:19,<br>112:6, 119:18 |
| <b>keep</b><br>47:2, 101:22,<br>112:21                                                                                                                                                                                                                                    | <b>knows</b><br>104:11                                                                                                                                                              | <b>library</b><br>81:3, 81:10,<br>81:13, 86:5,<br>94:16, 102:19,<br>103:9                                                                  | <b>listing</b><br>50:18                                                                                          |
| <b>kept</b><br>102:5, 102:17                                                                                                                                                                                                                                              | <b>L</b>                                                                                                                                                                            | <b>library's</b><br>86:2                                                                                                                   | <b>lists</b><br>53:10                                                                                            |
| <b>kilovolts</b><br>21:16                                                                                                                                                                                                                                                 | <b>laboratory</b><br>40:16                                                                                                                                                          | <b>lied</b><br>88:11                                                                                                                       | <b>litigation</b><br>18:13, 28:9                                                                                 |
| <b>kind</b><br>42:3, 89:6,<br>112:22, 114:7                                                                                                                                                                                                                               | <b>large</b><br>39:1                                                                                                                                                                | <b>lies</b><br>102:22                                                                                                                      | <b>little</b><br>7:14, 13:1,<br>32:18, 50:8,<br>105:9, 122:12,<br>122:16, 135:2                                  |
| <b>kitchens</b><br>132:9, 132:15                                                                                                                                                                                                                                          | <b>last</b><br>6:18, 17:13,<br>21:18, 43:18,<br>70:13, 87:4,<br>89:6, 105:21,<br>117:14, 124:16,<br>129:19, 131:4,<br>135:5                                                         | <b>lieu</b><br>81:7                                                                                                                        | <b>lloyd</b><br>82:15                                                                                            |
| <b>knew</b><br>109:20                                                                                                                                                                                                                                                     | <b>late</b><br>34:1                                                                                                                                                                 | <b>likely</b><br>30:12, 39:3,<br>94:16, 98:5                                                                                               | <b>llp</b><br>2:3, 3:6,<br>139:16                                                                                |
| <b>know</b><br>7:14, 8:16,<br>8:21, 11:18,<br>20:15, 22:18,<br>25:17, 27:2,<br>28:20, 33:3,<br>33:5, 33:6,<br>33:9, 36:8,<br>48:10, 49:18,<br>51:12, 60:1,<br>68:20, 71:6,<br>74:2, 74:21,<br>75:7, 83:3,<br>85:11, 86:7,<br>90:20, 91:7,<br>91:13, 92:5,<br>92:9, 92:11, | <b>later</b><br>32:18, 32:19,<br>46:12, 90:8                                                                                                                                        | <b>limit</b><br>102:19, 103:9,<br>124:21                                                                                                   | <b>local</b><br>98:6                                                                                             |
|                                                                                                                                                                                                                                                                           | <b>latex</b><br>45:1, 47:2                                                                                                                                                          | <b>limiting</b><br>103:1                                                                                                                   | <b>locate</b><br>132:5, 132:8,<br>133:14, 137:5                                                                  |
|                                                                                                                                                                                                                                                                           | <b>lead</b><br>36:18                                                                                                                                                                | <b>limits</b><br>125:7, 132:21                                                                                                             | <b>long</b><br>47:5, 84:5                                                                                        |
|                                                                                                                                                                                                                                                                           | <b>leading</b><br>46:22, 77:20                                                                                                                                                      | <b>line</b><br>46:4, 46:13,                                                                                                                | <b>look</b><br>14:11, 18:5,<br>46:4, 53:4,<br>62:21, 63:20,                                                      |
|                                                                                                                                                                                                                                                                           | <b>leads</b><br>81:17                                                                                                                                                               |                                                                                                                                            |                                                                                                                  |
|                                                                                                                                                                                                                                                                           | <b>leaks</b><br>45:1                                                                                                                                                                |                                                                                                                                            |                                                                                                                  |

|                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 64:19, 65:3,<br>65:20, 67:8,<br>68:20, 70:21,<br>71:14, 71:17,<br>72:19, 73:11,<br>78:6, 84:15,<br>88:4, 118:22,<br>124:16, 125:18,<br>126:15, 129:16<br><b>looked</b><br>66:1, 98:2,<br>112:7, 112:13,<br>120:3, 120:9,<br>125:13, 125:16,<br>126:5<br><b>looking</b><br>45:22, 46:2,<br>86:7, 90:2<br><b>lot</b><br>74:9<br><b>low-cost</b><br>129:5<br><b>lower</b><br>121:21, 126:15,<br>129:14<br><b>lunch</b><br>9:21, 110:17,<br>111:5 | 31:12, 32:12,<br>32:13, 88:5<br><b>make</b><br>11:18, 17:20,<br>22:3, 22:4,<br>25:15, 42:20,<br>56:22, 57:13,<br>61:5, 61:13,<br>61:19, 70:12,<br>71:2, 76:14,<br>83:11, 84:3,<br>98:1, 99:16,<br>99:17, 100:7,<br>100:17, 101:17,<br>110:21, 111:3,<br>115:7<br><b>makes</b><br>27:6, 39:22,<br>94:19<br><b>making</b><br>27:2, 28:3,<br>28:4, 59:6<br><b>management</b><br>35:9<br><b>mandrel</b><br>44:1, 46:7,<br>46:9, 46:16<br><b>manual</b><br>46:7, 46:17<br><b>manufacturer</b><br>36:19<br><b>manufacturers</b><br>130:7<br><b>manufacturing</b><br>36:14<br><b>many</b><br>79:20, 105:6,<br>126:1<br><b>mark</b><br>1:17, 2:1, 4:2,<br>5:3, 5:15, 5:19,<br>6:4, 6:11,<br>16:14, 138:2,<br>139:5, 139:15<br><b>marked</b><br>5:1, 6:3,<br>10:10, 10:20,<br>16:12, 43:5, | 43:8, 47:14,<br>78:8, 134:22<br><b>marriage</b><br>139:21<br><b>master's</b><br>116:18<br><b>materials</b><br>101:22<br><b>matter</b><br>7:1, 7:3, 7:15,<br>9:8, 9:10, 19:4,<br>20:4, 23:9,<br>23:10, 37:15,<br>42:5, 42:6,<br>52:8, 59:17,<br>90:10, 116:6,<br>140:2<br><b>maximum</b><br>37:13<br><b>mayaguez</b><br>113:15<br><b>maybe</b><br>107:3, 117:6<br><b>mean</b><br>9:11, 9:13,<br>12:10, 13:4,<br>13:21, 15:16,<br>22:1, 22:20,<br>23:3, 24:3,<br>24:4, 24:6,<br>26:15, 26:16,<br>27:17, 28:5,<br>32:4, 33:11,<br>33:14, 36:4,<br>36:21, 51:5,<br>52:5, 58:11,<br>58:18, 63:2,<br>71:5, 74:20,<br>79:3, 88:2,<br>88:9, 91:9,<br>92:15, 99:10,<br>107:17, 107:19,<br>123:10, 125:8,<br>125:11, 126:1,<br>133:22, 134:4<br><b>meaning</b><br>44:17, 44:19,<br>45:6, 87:6 | <b>meaningless</b><br>105:9<br><b>means</b><br>30:2, 45:7,<br>47:4, 82:19,<br>85:16, 87:5,<br>88:3, 106:19<br><b>meant</b><br>10:2, 44:6,<br>46:1, 133:20<br><b>measuring</b><br>43:21<br><b>mechanical</b><br>116:22<br><b>mechanisms</b><br>76:21<br><b>meet</b><br>36:12<br><b>megan</b><br>3:5<br><b>membrane</b><br>45:4<br><b>memory</b><br>45:20, 60:11<br><b>mention</b><br>29:4, 69:16,<br>69:20, 69:22,<br>74:14, 135:12,<br>135:15, 135:18<br><b>mentioned</b><br>18:17, 19:16,<br>25:19, 28:2,<br>29:2, 74:12,<br>75:1, 103:1,<br>112:19, 116:12<br><b>mentions</b><br>73:16, 73:18,<br>73:21, 74:5,<br>74:17, 108:6<br><b>method</b><br>45:1, 129:10<br><b>microwave</b><br>26:16, 28:16,<br>29:5, 29:8,<br>29:10, 29:13,<br>29:17, 29:19,<br>30:4, 30:5,<br>30:8, 30:14, |
| <b>M</b>                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>m-a-r-d-r-e-l</b><br>46:8<br><b>m-a-y-a-g-u-e-z</b><br>113:16<br><b>machines</b><br>23:1<br><b>made</b><br>71:3, 79:1,<br>81:20, 84:22,<br>85:6, 98:5,<br>98:7, 109:19,<br>110:1, 110:4,<br>110:14, 133:8<br><b>magically</b><br>106:21<br><b>magnetron</b><br>29:7, 31:3,<br>31:7, 31:9,                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 30:19, 30:22,<br>31:4, 31:7,<br>32:6, 32:13,<br>34:3, 34:5,<br>34:8, 34:11,<br>34:15, 34:21,<br>34:22, 35:3,<br>35:4, 35:6,<br>35:9, 35:10,<br>35:13, 36:2,<br>36:5, 36:15,<br>36:17, 36:22,<br>37:3, 37:4,<br>37:7, 37:20,<br>38:8, 38:11,<br>38:13, 38:14,<br>38:17, 39:1,<br>39:5, 39:9,<br>39:12, 40:4,<br>40:10, 40:12,<br>62:4, 63:21,<br>64:1, 64:19,<br>65:13, 65:15,<br>65:16, 65:20,<br>66:9, 67:8,<br>67:18, 67:21,<br>68:6, 68:9,<br>68:18, 69:4,<br>69:8, 69:13,<br>70:1, 70:3,<br>70:21, 71:14,<br>73:1, 73:15,<br>73:17, 73:22,<br>74:6, 74:14,<br>74:18, 82:8,<br>82:14, 87:18,<br>113:18, 119:17,<br>124:22, 125:7,<br>125:10, 125:14,<br>125:17, 125:19,<br>133:4, 133:9,<br>135:16<br><b>microwaves</b><br>22:22, 26:6,<br>26:14, 26:15,<br>28:12, 29:3,<br>29:4, 37:9,<br>37:22, 134:12 | <b>mid-s</b><br>37:16<br><b>middle</b><br>67:19, 107:15,<br>113:4<br><b>might</b><br>60:9<br><b>milliwatts</b><br>124:19, 124:20<br><b>mini-fridge</b><br>68:4<br><b>minutes</b><br>135:22<br><b>misleading</b><br>97:22<br><b>missed</b><br>31:16, 102:4<br><b>missing</b><br>18:14<br><b>mission</b><br>102:21<br><b>misunderstood</b><br>107:4<br><b>mit</b><br>80:4<br><b>model</b><br>118:7, 120:16<br><b>modern</b><br>96:2<br><b>modifying</b><br>134:17<br><b>moines</b><br>3:16<br><b>moment</b><br>25:11, 64:12,<br>127:19<br><b>monthly</b><br>108:7, 108:13,<br>108:19, 109:3<br><b>more</b><br>20:6, 28:22,<br>58:2, 59:8,<br>68:2, 68:5,<br>96:2, 98:3,<br>98:4, 122:17<br><b>most</b><br>24:14, 52:9<br><b>motivated</b><br>63:19, 64:19, | 67:7, 70:21<br><b>motivates</b><br>72:18<br><b>motivation</b><br>63:17, 65:19,<br>67:12, 69:3,<br>70:10, 72:9<br><b>much</b><br>32:19, 95:21,<br>129:14<br><b>must</b><br>90:3, 102:4,<br>105:18, 114:5<br><b>myself</b><br>8:16, 79:20,<br>89:19<br><hr/> <b>N</b> <hr/> <b>name</b><br>6:9, 23:8,<br>25:11, 27:8,<br>60:6, 60:7,<br>89:18, 117:14,<br>129:19, 135:5<br><b>named</b><br>42:12, 43:13<br><b>namely</b><br>70:18<br><b>narrow</b><br>105:2, 105:9<br><b>nature</b><br>7:3, 99:15<br><b>naught</b><br>126:18<br><b>necessary</b><br>9:16<br><b>need</b><br>8:15, 11:16,<br>36:12, 39:8,<br>44:14, 49:17,<br>66:19, 67:11,<br>68:17, 96:3,<br>129:7, 129:9<br><b>needs</b><br>20:14<br><b>neighborhood</b><br>45:2, 79:2,<br>79:3 | <b>neither</b><br>56:5, 56:14,<br>74:8<br><b>net</b><br>94:9<br><b>never</b><br>34:15, 34:21,<br>35:3, 35:9,<br>35:13, 36:2,<br>38:10, 39:13,<br>39:21, 40:3,<br>70:5, 73:16,<br>73:18, 73:21,<br>74:5, 74:12,<br>74:17, 96:13,<br>98:17, 99:2,<br>103:17, 104:13,<br>108:18, 109:1,<br>109:12, 109:13,<br>110:1, 110:8<br><b>new</b><br>23:14, 58:18<br><b>next</b><br>88:5, 88:19,<br>132:14, 132:18<br><b>nf</b><br>113:10<br><b>niwa</b><br>14:14, 14:18<br><b>nobody</b><br>20:14<br><b>noco</b><br>18:20<br><b>noise</b><br>87:17, 90:4<br><b>none</b><br>27:4, 27:9,<br>96:8<br><b>nonobviousness</b><br>58:10, 60:2,<br>60:13<br><b>noon</b><br>110:17<br><b>northeastern</b><br>5:8, 78:12,<br>79:22, 80:7,<br>80:9, 80:11,<br>80:13, 80:15, |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 80:19, 81:1,<br>81:11, 81:16,<br>82:15, 90:16,<br>90:18, 92:6,<br>92:10, 96:14,<br>97:7, 97:10,<br>97:14, 97:21,<br>98:8, 98:12,<br>98:15, 98:18,<br>99:1, 99:4,<br>104:4, 104:14,<br>105:4, 105:8,<br>105:13, 105:17,<br>109:2, 109:6,<br>109:14, 112:1,<br>112:8, 112:10,<br>113:4, 113:14,<br>114:4, 116:13<br><b>northwest</b><br>2:4, 139:16<br><b>notary</b><br>2:12, 139:1,<br>139:2, 140:9<br><b>notes</b><br>28:10, 129:7,<br>132:21<br><b>nothing</b><br>124:6<br><b>notice</b><br>2:11, 4:15,<br>4:17, 10:14,<br>11:3<br><b>noticed</b><br>17:12<br><b>novel</b><br>58:6<br><b>novelty</b><br>58:10, 58:11,<br>58:14, 58:18<br><b>november</b><br>101:13<br><b>nsf-funded</b><br>113:11<br><b>number</b><br>10:11, 10:20,<br>10:21, 14:13,<br>43:5, 43:10,<br>48:18, 72:12, | 87:4, 117:13,<br>118:7, 129:18<br><b>numbering</b><br>18:2<br><b>numbers</b><br>6:2, 49:11,<br>49:13<br><b>numerous</b><br>25:1, 51:10,<br>73:4, 103:4,<br>112:7<br><hr/> <b>O</b> <hr/> <b>object</b><br>9:15, 31:19<br><b>objection</b><br>22:16, 28:7,<br>31:14, 33:1,<br>34:18, 38:18,<br>39:19, 45:18,<br>48:15, 56:10,<br>58:7, 60:17,<br>60:20, 61:22,<br>62:14, 66:21,<br>67:14, 69:5,<br>72:2, 72:10,<br>77:5, 83:6,<br>84:11, 86:9,<br>90:22, 92:14,<br>102:12, 104:7,<br>107:2, 109:4,<br>117:19, 120:13,<br>123:1, 130:21,<br>133:21<br><b>objective</b><br>103:4<br><b>obtain</b><br>109:2<br><b>obtained</b><br>95:8, 95:10<br><b>obvious</b><br>35:18, 52:21<br><b>obviously</b><br>83:1<br><b>obviousness</b><br>58:2, 58:10,<br>59:7<br><b>occasional</b><br>52:21 | <b>occur</b><br>45:9, 129:1<br><b>occurred</b><br>61:9, 139:15<br><b>occurring</b><br>73:21<br><b>october</b><br>30:1, 55:7<br><b>offhand</b><br>7:4, 38:19,<br>39:4<br><b>office</b><br>1:1, 42:18,<br>43:3<br><b>offices</b><br>2:2, 139:15<br><b>official</b><br>49:21, 49:22<br><b>often</b><br>133:5<br><b>oh</b><br>72:4, 72:20,<br>112:19, 120:5<br><b>ohms</b><br>124:12, 124:15<br><b>okay</b><br>6:13, 7:12,<br>7:21, 8:4, 9:17,<br>9:18, 10:8,<br>11:15, 12:8,<br>12:12, 13:6,<br>13:7, 13:19,<br>16:1, 18:11,<br>29:5, 29:16,<br>32:2, 32:3,<br>32:4, 49:9,<br>50:3, 50:7,<br>58:17, 62:21,<br>63:14, 64:14,<br>64:17, 69:22,<br>75:1, 75:10,<br>76:18, 77:13,<br>82:12, 85:10,<br>89:11, 89:13,<br>90:20, 93:4,<br>94:11, 98:6,<br>100:10, 105:14,<br>106:4, 111:13, | 113:3, 118:10,<br>122:19, 125:13,<br>137:3, 137:16<br><b>once</b><br>30:11<br><b>one</b><br>8:2, 11:16,<br>14:12, 14:17,<br>15:17, 17:16,<br>17:19, 18:15,<br>20:6, 20:19,<br>24:15, 24:19,<br>28:22, 29:14,<br>31:22, 37:10,<br>37:19, 38:7,<br>40:5, 40:15,<br>43:12, 47:19,<br>47:20, 47:21,<br>48:6, 48:12,<br>48:17, 51:9,<br>51:11, 58:2,<br>59:7, 60:8,<br>60:9, 63:6,<br>64:8, 64:9,<br>64:12, 65:3,<br>68:1, 70:22,<br>72:4, 76:15,<br>76:16, 87:21,<br>98:4, 98:21,<br>100:21, 101:1,<br>102:18, 103:8,<br>107:21, 118:16,<br>120:22, 124:15,<br>126:1, 126:22,<br>127:19, 128:20,<br>130:4, 132:14<br><b>one-page</b><br>106:3<br><b>ones</b><br>57:9, 60:7<br><b>ongoing</b><br>19:13<br><b>only</b><br>8:1, 8:17,<br>31:22, 58:1,<br>60:8, 88:7,<br>118:16, 118:22,<br>128:20 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>opened</b><br>84:2<br><b>operated</b><br>99:3<br><b>operating</b><br>126:20<br><b>operation</b><br>68:6, 88:6<br><b>opinion</b><br>49:1, 68:13,<br>72:17, 74:22,<br>75:8, 75:11,<br>75:15, 76:12,<br>84:7, 84:16,<br>93:13, 103:19,<br>106:20<br><b>opinions</b><br>56:6, 56:15,<br>95:18, 96:6,<br>96:11, 125:20,<br>126:9, 133:15,<br>137:11<br><b>opposed</b><br>25:21, 130:18<br><b>opposite</b><br>76:16<br><b>order</b><br>81:19, 124:15<br><b>ordinary</b><br>40:20, 63:20<br><b>organic</b><br>75:17, 77:11,<br>118:4, 120:2,<br>120:19, 120:20<br><b>original</b><br>98:14, 107:6<br><b>other</b><br>11:17, 13:15,<br>20:20, 21:22,<br>25:4, 26:4,<br>32:2, 40:15,<br>47:20, 48:6,<br>48:13, 49:16,<br>51:7, 51:9,<br>52:8, 52:21,<br>53:21, 63:18,<br>65:20, 66:1,<br>66:3, 68:20, | 70:22, 71:10,<br>71:21, 73:14,<br>76:20, 77:17,<br>78:3, 78:5,<br>79:12, 81:1,<br>98:20, 100:21,<br>101:1, 101:20,<br>102:13, 105:6,<br>109:14, 113:14,<br>126:8, 130:10<br><b>others</b><br>24:20, 54:8,<br>61:11, 61:13<br><b>otherwise</b><br>84:17, 140:1<br><b>out</b><br>10:8, 30:19,<br>32:8, 32:10,<br>49:9, 53:10,<br>53:19, 54:6,<br>68:4, 72:12,<br>110:12, 116:10<br><b>outcome</b><br>19:10, 19:12,<br>140:2<br><b>outlet</b><br>34:21, 35:10,<br>130:1, 130:3<br><b>outlets</b><br>65:8, 70:17,<br>72:15, 135:10<br><b>outline</b><br>16:22<br><b>output</b><br>101:18, 103:6<br><b>oven</b><br>30:4, 31:7,<br>36:3, 36:5,<br>36:15, 36:17,<br>36:22, 37:7,<br>37:20, 38:8,<br>38:11, 39:1,<br>39:5, 39:10,<br>39:12, 119:17,<br>125:1, 133:5,<br>133:9<br><b>ovens</b><br>26:16, 29:17, | 30:22, 31:4,<br>38:14, 38:17,<br>65:21, 73:1,<br>82:8, 82:14,<br>113:18, 124:22,<br>125:7, 125:10,<br>125:14, 125:17,<br>125:19<br><b>over</b><br>7:12, 8:3,<br>11:17, 28:13,<br>31:10, 32:2,<br>137:10<br><b>overload</b><br>65:10, 66:3,<br>66:7, 68:22,<br>69:11, 70:18,<br>70:19, 72:16<br><b>overriding</b><br>102:21<br><b>own</b><br>26:2, 28:22,<br>29:5, 29:7,<br>31:1, 128:14<br><b>owned</b><br>12:1, 29:9,<br>29:14, 34:3,<br>34:14, 34:20,<br>35:2, 35:8,<br>35:12<br><b>owner</b><br>1:9<br><hr/> <p style="text-align: center;"><b>P</b></p> <hr/> <b>pack</b><br>19:8<br><b>page</b><br>4:2, 17:5,<br>17:7, 18:2,<br>18:3, 48:9,<br>48:18, 48:20,<br>50:2, 50:5,<br>53:5, 55:13,<br>55:20, 57:1,<br>64:7, 64:10,<br>64:13, 66:15,<br>82:6, 82:10,<br>83:15, 85:19, | 87:16, 88:19,<br>102:4, 107:16,<br>112:17, 113:3,<br>121:21, 122:1,<br>122:12, 122:13,<br>122:15, 126:16,<br>127:22, 128:15,<br>131:18, 132:11,<br>132:18, 137:6<br><b>pages</b><br>1:21, 48:7<br><b>pair</b><br>69:1<br><b>paper</b><br>36:17, 36:21,<br>80:17, 81:3,<br>86:3, 91:1,<br>93:18, 108:19,<br>110:14, 111:10,<br>117:5<br><b>papers</b><br>105:18<br><b>paragraph</b><br>57:2, 64:15,<br>66:14, 66:16,<br>67:1, 67:2,<br>67:15, 67:16,<br>67:20, 69:7,<br>70:9, 70:12,<br>72:8, 72:11,<br>72:12, 83:20,<br>84:4, 84:15,<br>88:5, 88:14,<br>88:20, 90:1,<br>118:1, 127:15,<br>127:22, 128:6,<br>128:8, 128:14,<br>128:19, 129:3<br><b>paragraphs</b><br>68:21<br><b>paraphrase</b><br>70:13<br><b>paraphrasing</b><br>67:22<br><b>parentheses</b><br>65:10<br><b>parlance</b><br>23:15 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>part</b><br>9:5, 15:9,<br>19:21, 34:10,<br>36:20, 37:4,<br>37:9, 37:18,<br>38:6, 38:16,<br>39:2, 41:14,<br>42:1, 46:5,<br>51:12, 54:9,<br>57:4, 75:22,<br>98:9, 101:11,<br>112:5, 113:4,<br>113:13, 114:1,<br>115:1, 115:9,<br>115:17, 132:4<br><b>part-time</b><br>22:6, 22:9,<br>25:1<br><b>partes</b><br>5:5, 16:15,<br>52:15, 55:12,<br>55:17, 56:7,<br>56:16, 57:4,<br>57:10<br><b>partial</b><br>88:20<br><b>particular</b><br>44:16, 53:5<br><b>particularly</b><br>73:3, 103:5<br><b>particulates</b><br>42:10<br><b>parties</b><br>18:16, 18:19,<br>139:20, 139:22<br><b>parts</b><br>17:16, 28:20<br><b>party</b><br>18:22, 139:11<br><b>pass</b><br>46:15<br><b>passing</b><br>132:15<br><b>past</b><br>6:21, 116:2,<br>116:7<br><b>patent</b><br>1:1, 1:3, 1:9, | 1:12, 1:15,<br>4:19, 5:2, 5:6,<br>5:10, 5:11,<br>5:12, 7:6, 7:15,<br>8:22, 12:6,<br>12:8, 12:12,<br>12:19, 13:7,<br>13:17, 13:19,<br>14:1, 14:12,<br>14:13, 14:16,<br>15:17, 15:20,<br>30:2, 42:18,<br>43:2, 43:10,<br>43:15, 44:6,<br>44:7, 44:8,<br>44:12, 44:15,<br>44:18, 44:21,<br>44:22, 45:12,<br>45:21, 46:2,<br>46:21, 47:3,<br>51:18, 58:6,<br>63:5, 63:10,<br>63:11, 68:21,<br>101:10, 108:17,<br>115:19, 117:13,<br>120:22, 121:4,<br>129:15, 129:18,<br>130:1, 132:8,<br>133:1, 135:3<br><b>patents</b><br>11:22, 14:7,<br>14:9, 14:11,<br>14:20, 14:22,<br>15:8, 15:11,<br>16:15, 35:17,<br>40:19, 42:13,<br>42:15, 42:17,<br>42:21, 43:1,<br>43:12, 52:15,<br>52:17, 54:18,<br>54:21, 55:11,<br>55:16, 56:2,<br>56:7, 56:15,<br>57:3, 57:7,<br>57:10, 57:14,<br>57:16, 57:18,<br>57:19, 57:22,<br>58:19, 59:1, | 59:13, 60:16,<br>61:2, 61:14,<br>61:17, 61:21,<br>62:8, 62:12,<br>62:17, 74:8,<br>74:11, 74:13,<br>84:20, 126:8<br><b>path</b><br>49:10, 98:10<br><b>patton</b><br>3:13<br><b>pending</b><br>7:15, 8:19<br><b>penny</b><br>110:5<br><b>people</b><br>108:6<br><b>performed</b><br>62:15<br><b>period</b><br>80:20, 119:6,<br>122:10, 122:17<br><b>periodically</b><br>88:16, 89:4<br><b>permission</b><br>102:6<br><b>person</b><br>23:18, 35:19,<br>35:21, 40:20,<br>44:11, 44:13,<br>45:10, 63:20,<br>65:19, 71:13,<br>71:17, 71:20,<br>72:18, 72:22,<br>73:9, 128:17<br><b>personal</b><br>28:9<br><b>perspective</b><br>50:1<br><b>pertained</b><br>96:8<br><b>pertaining</b><br>125:14<br><b>petitioner</b><br>1:6, 12:4,<br>13:2, 13:14,<br>16:13, 47:14,<br>49:12, 50:18, | 51:22, 52:11,<br>53:4, 53:10,<br>55:4, 55:18,<br>55:19, 58:21,<br>59:20, 63:4,<br>63:14, 66:15,<br>78:8, 80:18,<br>82:5, 86:4,<br>94:4, 95:7,<br>95:10, 106:1,<br>111:14, 117:12,<br>118:11, 127:16,<br>129:17, 131:13,<br>133:15, 133:16,<br>134:22, 135:1,<br>136:21<br><b>petitioner's</b><br>85:11, 111:11,<br>126:10, 126:11<br><b>petitions</b><br>5:4, 5:16,<br>5:20, 16:14,<br>52:14, 52:16<br><b>pgr</b><br>1:11, 1:14,<br>4:16, 4:18,<br>5:17, 5:21,<br>48:1, 48:19,<br>49:13, 52:8<br><b>pgr-3</b><br>10:16, 47:16<br><b>pgr-4</b><br>11:4, 47:16<br><b>pgr-_____</b><br>5:21<br><b>pgrs</b><br>50:18<br><b>ph</b><br>1:17, 2:1, 4:2,<br>6:4, 41:6, 41:9,<br>42:2, 116:19,<br>116:20, 116:21,<br>117:1, 138:2,<br>139:5, 139:15<br><b>phrase</b><br>70:19<br><b>physical</b><br>87:5 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>piece</b><br/>58:22, 91:1,<br/>107:13</p> <p><b>pieces</b><br/>66:1</p> <p><b>pile</b><br/>10:9</p> <p><b>pinhole</b><br/>45:1</p> <p><b>place</b><br/>68:22, 77:19,<br/>92:12</p> <p><b>placed</b><br/>79:7, 101:2,<br/>101:3, 131:2</p> <p><b>places</b><br/>40:15</p> <p><b>plane</b><br/>68:10</p> <p><b>planning</b><br/>10:14</p> <p><b>plasma</b><br/>42:1</p> <p><b>plates</b><br/>46:10</p> <p><b>please</b><br/>6:9, 8:7,<br/>11:17, 12:5,<br/>25:17, 49:18,<br/>71:9, 83:13,<br/>84:15, 86:10,<br/>136:20</p> <p><b>plot</b><br/>126:15, 127:3</p> <p><b>plots</b><br/>126:22</p> <p><b>plug</b><br/>134:18</p> <p><b>plugged</b><br/>35:13, 130:3,<br/>134:18</p> <p><b>point</b><br/>9:19, 12:14,<br/>45:4, 66:2,<br/>66:13, 68:4,<br/>71:2, 72:12,<br/>94:11, 94:12,<br/>103:4, 108:12,</p> | <p>132:6, 132:12,<br/>132:13, 133:10</p> <p><b>points</b><br/>53:20, 132:10</p> <p><b>policies</b><br/>100:9, 101:8</p> <p><b>polytech</b><br/>113:15</p> <p><b>popcorn</b><br/>30:11, 30:13</p> <p><b>port</b><br/>35:3</p> <p><b>portion</b><br/>44:1, 67:1</p> <p><b>ports</b><br/>135:9</p> <p><b>posita</b><br/>64:19, 67:7</p> <p><b>position</b><br/>68:7, 68:8</p> <p><b>possible</b><br/>27:7, 37:13,<br/>51:16, 52:21,<br/>101:5, 119:18</p> <p><b>possibly</b><br/>15:1, 29:11,<br/>34:2, 38:19,<br/>38:20, 38:21</p> <p><b>post</b><br/>5:16, 5:20,<br/>7:16, 9:1, 9:5,<br/>11:7, 11:12,<br/>11:16, 11:21,<br/>13:15, 20:13,<br/>47:7, 47:8,<br/>47:15, 48:1,<br/>48:11, 49:3,<br/>49:14, 51:5,<br/>51:7, 51:13,<br/>52:17, 54:18,<br/>56:8, 56:16,<br/>57:15, 57:19,<br/>58:3, 64:10,<br/>83:2, 114:18,<br/>125:21</p> <p><b>potential</b><br/>128:13</p> <p><b>power</b><br/>34:21, 35:9,</p> | <p>65:7, 66:3,<br/>66:6, 70:16,<br/>72:14, 72:18,<br/>73:11, 122:20,<br/>122:22, 123:3,<br/>123:7, 123:9,<br/>123:10, 123:11,<br/>123:20, 123:22,<br/>124:2, 124:8,<br/>124:12, 124:18,<br/>124:22, 125:6,<br/>125:8, 125:10,<br/>125:11, 135:9</p> <p><b>powerpoint</b><br/>103:12</p> <p><b>practical</b><br/>28:11, 28:15</p> <p><b>praise</b><br/>62:6, 62:16</p> <p><b>precede</b><br/>68:15, 79:11</p> <p><b>precedes</b><br/>65:3</p> <p><b>preceding</b><br/>67:16</p> <p><b>precisely</b><br/>60:9</p> <p><b>preheating</b><br/>122:10, 122:16</p> <p><b>preparation</b><br/>101:8, 116:5,<br/>116:10, 125:19,<br/>126:4, 126:9</p> <p><b>prepare</b><br/>59:16</p> <p><b>prepared</b><br/>10:16, 15:15,<br/>16:19, 28:12</p> <p><b>preparing</b><br/>49:5, 133:14</p> <p><b>present</b><br/>41:13, 114:17</p> <p><b>presentation</b><br/>42:3, 102:3,<br/>103:12</p> <p><b>prevent</b><br/>66:3, 66:6,<br/>70:1, 72:16</p> | <p><b>preventing</b><br/>65:10</p> <p><b>previous</b><br/>29:18</p> <p><b>previously</b><br/>5:1, 12:4,<br/>13:5, 13:14,<br/>45:20, 52:7,<br/>65:12, 117:12</p> <p><b>primarily</b><br/>26:9</p> <p><b>primitive</b><br/>98:3</p> <p><b>principle</b><br/>126:22</p> <p><b>principles</b><br/>36:12</p> <p><b>printed</b><br/>84:17, 90:21,<br/>91:8, 91:10</p> <p><b>prior</b><br/>12:12, 13:7,<br/>14:1, 15:20,<br/>28:8, 48:12,<br/>53:18, 53:22,<br/>54:5, 55:5,<br/>55:9, 55:13,<br/>56:9, 56:17,<br/>58:2, 58:22,<br/>59:8, 66:1,<br/>73:14, 84:19,<br/>91:19, 93:19,<br/>125:14, 126:6</p> <p><b>private</b><br/>99:12, 99:17,<br/>99:18, 100:2,<br/>100:7, 100:17,<br/>104:2, 104:10</p> <p><b>privilege</b><br/>9:9, 9:11, 9:13</p> <p><b>probable</b><br/>120:22</p> <p><b>probably</b><br/>15:14, 23:21,<br/>30:10, 32:7,<br/>91:16</p> <p><b>problem</b><br/>73:3, 73:13,</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 87:21, 88:1,<br>88:3, 88:4,<br>88:8, 88:11<br><b>problems</b><br>74:5, 87:17,<br>87:22<br><b>proceeding</b><br>7:5, 7:6, 8:22,<br>11:17, 13:15,<br>18:17, 19:5,<br>19:11, 19:15,<br>19:17, 33:8,<br>47:8, 48:11,<br>57:15<br><b>proceedings</b><br>11:8, 11:13,<br>11:22, 47:8,<br>49:4, 51:5,<br>51:8, 51:15,<br>54:19, 56:8,<br>56:17, 57:5,<br>57:20, 114:19,<br>116:2, 125:21<br><b>process</b><br>7:17, 9:1, 9:6,<br>36:14, 37:10,<br>42:1, 51:13,<br>79:19, 80:12,<br>84:4, 84:6,<br>85:3, 85:4,<br>86:1, 87:18<br><b>processed</b><br>46:18<br><b>processes</b><br>38:14, 42:9<br><b>produce</b><br>119:4<br><b>produced</b><br>76:20, 77:13,<br>79:6<br><b>producing</b><br>46:16<br><b>product</b><br>9:14, 26:3,<br>28:4, 36:19,<br>38:2, 40:4,<br>60:8, 61:19<br><b>production</b><br>27:18 | <b>products</b><br>1:5, 3:2,<br>39:17, 40:10,<br>40:13, 60:15,<br>61:19, 62:3,<br>62:11, 62:13,<br>62:19, 136:16,<br>139:12<br><b>professor</b><br>6:12, 6:14,<br>6:15, 21:2,<br>21:4, 71:7,<br>79:8, 79:14,<br>79:21, 79:22,<br>80:2, 80:8,<br>80:12, 110:12,<br>123:16, 136:5,<br>137:15<br><b>professors</b><br>101:22<br><b>professorship</b><br>104:22<br><b>programs</b><br>114:14<br><b>project</b><br>81:4, 81:7,<br>81:15, 105:17,<br>111:15, 111:19,<br>111:21, 112:2,<br>114:1, 114:12,<br>115:7, 115:8<br><b>projects</b><br>81:14, 100:14,<br>112:9, 112:11,<br>112:12, 113:18,<br>113:20, 114:5,<br>114:8<br><b>prone</b><br>73:8<br><b>properties</b><br>120:18<br><b>property</b><br>6:22, 103:2<br><b>proposal</b><br>101:13<br><b>protections</b><br>9:14<br><b>protrusions</b><br>37:11 | <b>provide</b><br>44:14, 60:5,<br>70:8, 71:4,<br>71:12, 72:1,<br>72:11<br><b>provided</b><br>10:4, 19:17,<br>19:22, 45:15,<br>47:20, 50:19,<br>54:11, 62:22,<br>63:2, 131:12<br><b>provides</b><br>68:5, 72:9<br><b>providing</b><br>70:18<br><b>public</b><br>2:12, 79:1,<br>81:20, 83:19,<br>83:22, 84:18,<br>85:3, 96:8,<br>99:21, 104:3,<br>139:1, 139:3,<br>140:9<br><b>publication</b><br>5:7, 5:9, 5:13,<br>63:12, 66:14,<br>83:16, 84:17,<br>85:15, 85:19,<br>85:22, 102:9,<br>102:11, 102:13,<br>115:11, 115:22,<br>135:4<br><b>publications</b><br>82:21<br><b>publicly</b><br>78:20, 83:4,<br>84:8, 84:13,<br>84:22, 85:6,<br>93:9, 93:12,<br>114:5<br><b>publish</b><br>99:15, 104:1,<br>104:9<br><b>published</b><br>82:16, 82:18,<br>83:15, 83:17,<br>85:12, 85:13,<br>85:22, 87:9, | 105:18, 108:4<br><b>publisher</b><br>85:20, 86:2<br><b>puerto</b><br>113:16<br><b>pull</b><br>16:1<br><b>pulled</b><br>90:8<br><b>purchase</b><br>24:9, 24:12<br><b>purpose</b><br>65:9, 70:17,<br>77:1, 101:5,<br>101:17, 103:2,<br>127:8<br><b>purposes</b><br>28:9, 38:17,<br>39:14, 39:15,<br>47:7, 49:11,<br>49:15<br><b>pursuant</b><br>2:11<br><b>put</b><br>23:14, 32:13,<br>69:7, 77:1,<br>82:21, 82:22,<br>92:12<br><b>putting</b><br>134:9<br><hr/> <b>Q</b> <hr/> <b>qualifications</b><br>16:5<br><b>question</b><br>8:7, 8:12,<br>11:16, 12:22,<br>24:8, 25:9,<br>27:12, 29:2,<br>29:19, 31:21,<br>32:6, 38:4,<br>38:22, 47:13,<br>48:12, 52:7,<br>52:10, 53:15,<br>55:15, 56:11,<br>61:4, 67:3,<br>67:5, 69:2,<br>73:20, 74:12, |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 75:20, 76:5,<br>76:14, 77:8,<br>78:1, 79:12,<br>80:7, 85:4,<br>92:8, 93:3,<br>93:9, 93:15,<br>93:17, 96:4,<br>96:21, 103:7,<br>103:13, 104:16,<br>105:3, 105:15,<br>107:6, 107:8,<br>125:12, 128:2<br><b>question's</b><br>97:22<br><b>questioning</b><br>18:15<br><b>questions</b><br>7:20, 7:21,<br>8:19, 37:10,<br>49:18, 50:3,<br>80:14, 136:13,<br>136:19, 137:5,<br>137:13<br><b>quezada</b><br>135:5, 135:8,<br>135:12<br><b>quite</b><br>51:16<br><b>quotation</b><br>64:6<br><b>quoted</b><br>65:4, 67:1,<br>72:6<br><b>quoting</b><br>64:3 | <b>reach</b><br>85:21, 110:12<br><b>read</b><br>12:12, 13:7,<br>14:1, 14:16,<br>15:2, 15:6,<br>15:10, 15:12,<br>15:19, 17:13,<br>42:17, 45:11,<br>45:12, 46:5,<br>54:14, 54:17,<br>55:5, 55:9,<br>55:11, 55:16,<br>55:18, 56:4,<br>56:11, 56:13,<br>65:12, 67:17,<br>70:13, 72:4,<br>72:5, 85:10,<br>86:11, 86:14,<br>89:11, 111:1,<br>132:1, 132:4,<br>133:13, 138:3<br><b>readily</b><br>45:11, 119:21<br><b>reading</b><br>14:20, 15:21,<br>54:21, 55:13,<br>67:2, 75:9,<br>81:12, 88:18,<br>117:22<br><b>reads</b><br>66:16<br><b>really</b><br>48:20, 82:18,<br>121:1, 124:3,<br>134:11<br><b>reason</b><br>25:12, 46:8<br><b>recall</b><br>6:20, 7:4,<br>14:19, 14:20,<br>15:3, 15:5,<br>18:16, 18:22,<br>19:4, 19:10,<br>20:7, 23:8,<br>25:4, 25:10,<br>25:16, 32:15,<br>39:4, 40:2, | 41:16, 42:5,<br>54:8, 59:18,<br>74:10, 111:11,<br>115:4, 119:2,<br>121:11, 137:4<br><b>receive</b><br>108:7, 108:13<br><b>recent</b><br>52:9<br><b>recently</b><br>23:22<br><b>recessed</b><br>50:13, 111:6,<br>136:1<br><b>recite</b><br>65:4, 70:14<br><b>recollection</b><br>7:13, 74:8<br><b>recommended</b><br>94:8, 95:2<br><b>reconvened</b><br>50:14, 111:7,<br>136:2<br><b>record</b><br>6:10, 16:9,<br>16:10, 50:16,<br>100:6, 110:19,<br>110:20, 111:3,<br>111:5, 137:17,<br>139:9<br><b>refer</b><br>12:7, 13:18,<br>48:16, 49:17,<br>63:15, 64:5,<br>126:5, 136:20<br><b>reference</b><br>15:13, 15:17,<br>16:2, 56:9,<br>56:18, 57:21,<br>59:4, 74:9,<br>78:7, 83:4,<br>84:8, 84:13,<br>84:22, 85:6,<br>85:10, 89:13,<br>89:14, 89:16,<br>89:19, 90:7,<br>90:14, 90:17,<br>90:21, 91:19, | 102:2, 109:3,<br>109:9, 109:16,<br>120:10, 128:20,<br>129:6<br><b>referenced</b><br>132:7, 132:22<br><b>references</b><br>14:21, 53:11,<br>53:14, 53:19,<br>54:1, 54:6,<br>54:7, 54:11,<br>54:15, 54:22,<br>55:3, 55:5,<br>55:10, 55:19,<br>58:3, 59:5,<br>59:8, 59:11,<br>63:18, 73:14,<br>103:4, 131:8<br><b>referencing</b><br>72:17<br><b>referred</b><br>18:15, 28:6,<br>51:7, 57:9,<br>120:22<br><b>referred-to</b><br>15:13<br><b>referring</b><br>28:17, 44:20,<br>47:11, 55:21,<br>64:9, 68:13,<br>97:1, 97:2,<br>101:11, 107:12,<br>112:14, 112:18<br><b>refers</b><br>58:15, 65:14,<br>102:9<br><b>refresh</b><br>7:13<br><b>refrigeration</b><br>28:11, 28:16<br><b>refrigerator</b><br>28:19, 28:21,<br>35:13, 39:14,<br>40:4, 40:10,<br>40:13, 65:8,<br>65:16, 67:18,<br>68:2, 68:5,<br>68:10, 68:19, |
| <b>R</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>radiation</b><br>26:16<br><b>radio</b><br>23:11, 23:12,<br>24:16<br><b>range</b><br>127:9<br><b>rapid</b><br>21:17<br><b>ratio</b><br>126:19                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 70:16, 72:15,<br>134:14, 135:19<br><b>refrigerators</b><br>22:22, 26:6,<br>26:10, 26:12,<br>27:3, 28:22,<br>29:3, 39:22,<br>67:20<br><b>regard</b><br>10:16, 27:12,<br>27:16, 38:13,<br>50:4, 57:3,<br>57:14, 57:18,<br>93:16, 103:5,<br>109:9<br><b>regarding</b><br>51:10, 51:11,<br>61:16<br><b>regardless</b><br>61:7<br><b>region</b><br>76:7, 77:1<br><b>reiterate</b><br>76:19<br><b>related</b><br>27:21, 36:21,<br>37:21, 61:1,<br>61:19, 76:21,<br>108:19, 132:7,<br>136:9, 139:19<br><b>relating</b><br>113:18<br><b>relative</b><br>127:2<br><b>relatively</b><br>79:11, 80:19,<br>81:18, 129:8<br><b>relay</b><br>127:18, 128:6,<br>128:11<br><b>relied</b><br>133:17<br><b>relying</b><br>60:11<br><b>remember</b><br>23:16, 38:19,<br>54:20, 60:9,<br>121:17 | <b>renditions</b><br>52:13<br><b>rensselaer</b><br>113:15<br><b>repair</b><br>29:16<br><b>repaired</b><br>28:22, 29:5,<br>30:22<br><b>repeat</b><br>38:4, 67:3,<br>92:8, 93:3,<br>128:1<br><b>rephrase</b><br>8:8, 8:11,<br>27:14<br><b>replace</b><br>31:7, 81:2<br><b>replaced</b><br>31:3, 32:12,<br>81:13, 92:6,<br>92:9, 92:16,<br>94:13, 111:20<br><b>replacing</b><br>29:7, 31:9,<br>31:12, 129:11<br><b>report</b><br>16:3, 17:1,<br>20:3, 20:6,<br>49:6, 56:21,<br>70:9, 99:20<br><b>reported</b><br>1:22<br><b>reporter</b><br>8:1, 32:1,<br>139:1, 139:2<br><b>reports</b><br>11:9, 48:21,<br>53:3, 54:2,<br>108:8, 108:13,<br>108:19<br><b>repository</b><br>83:1, 92:5,<br>113:5<br><b>represented</b><br>19:1, 139:12<br><b>reprogrammed</b><br>34:15 | <b>requests</b><br>102:20, 103:10<br><b>require</b><br>62:13<br><b>required</b><br>99:14, 102:6,<br>111:19, 115:9,<br>115:11, 120:10,<br>129:12<br><b>requirement</b><br>81:5, 111:22,<br>123:20, 124:2<br><b>requirements</b><br>115:22, 122:20,<br>122:22, 123:4,<br>123:9, 125:10,<br>125:19<br><b>requires</b><br>122:9<br><b>requiring</b><br>115:6<br><b>research</b><br>21:11, 21:14,<br>42:3, 106:13,<br>113:11<br><b>reserve</b><br>111:1<br><b>reset</b><br>34:16, 88:16,<br>89:4, 117:18,<br>127:16, 128:4,<br>128:10, 128:16,<br>130:2<br><b>resistance</b><br>88:15, 89:3,<br>124:12, 124:14<br><b>respect</b><br>51:3, 65:22<br><b>respondent</b><br>18:21<br><b>response</b><br>59:10, 105:22<br><b>responsibilities</b><br>102:19, 103:9<br><b>responsive</b><br>117:22, 118:2,<br>120:1<br><b>rest</b><br>20:8, 69:9, | 83:20, 84:4<br><b>restriction</b><br>100:22, 101:2<br><b>result</b><br>46:16, 53:19<br><b>resulted</b><br>88:15, 89:2<br><b>results</b><br>119:3<br><b>retrofit</b><br>23:11<br><b>review</b><br>5:5, 5:16,<br>5:20, 7:16, 9:1,<br>9:6, 11:7,<br>11:12, 11:17,<br>11:22, 13:15,<br>14:6, 14:9,<br>15:8, 16:15,<br>47:7, 47:8,<br>47:16, 48:1,<br>48:11, 49:3,<br>49:15, 51:5,<br>51:8, 51:13,<br>52:15, 52:17,<br>54:19, 55:12,<br>55:17, 56:7,<br>56:8, 56:16,<br>57:4, 57:10,<br>57:15, 57:19,<br>58:3, 64:10,<br>79:6, 79:9,<br>79:15, 83:12,<br>87:6, 91:18,<br>91:19, 101:7,<br>111:2, 114:19,<br>116:4, 116:10,<br>125:21, 126:8<br><b>reviewed</b><br>15:7, 62:22,<br>98:11, 116:9<br><b>revision</b><br>121:19<br><b>rh</b><br>127:4<br><b>rico</b><br>113:16<br><b>rid</b><br>16:6 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ridiculous</b><br>104:16<br><b>right</b><br>8:1, 8:9, 8:21,<br>11:19, 17:18,<br>19:19, 20:14,<br>21:1, 21:3,<br>21:12, 21:15,<br>23:15, 24:1,<br>25:14, 25:15,<br>27:11, 28:14,<br>29:15, 30:6,<br>30:21, 31:2,<br>31:17, 32:17,<br>34:19, 35:1,<br>35:20, 35:22,<br>36:7, 43:14,<br>50:16, 59:22,<br>63:21, 64:2,<br>64:15, 66:8,<br>70:6, 70:7,<br>74:16, 77:10,<br>78:6, 78:15,<br>80:5, 81:21,<br>89:1, 90:6,<br>90:11, 91:4,<br>91:5, 91:17,<br>92:4, 94:2,<br>96:16, 98:16,<br>103:16, 105:12,<br>110:11, 111:1,<br>111:16, 111:17,<br>115:9, 115:10,<br>116:14, 117:4,<br>119:11, 119:14,<br>126:16, 127:6,<br>127:11, 127:14,<br>128:19, 129:5,<br>129:16, 131:11,<br>131:15, 132:1,<br>132:16, 133:12,<br>134:12<br><b>right-hand</b><br>106:12<br><b>rome</b><br>2:3, 3:6,<br>139:16<br><b>rooms</b><br>40:14 | <b>roughly</b><br>117:7<br><b>rs</b><br>126:18<br><b>rs-ro</b><br>127:4<br><b>rubber</b><br>39:2<br><b>rule</b><br>31:22<br><b>rules</b><br>7:12, 114:15<br><b>russell</b><br>3:4<br><hr/> <b>s</b><br><hr/> <b>s</b><br>111:15, 115:17<br><b>safety</b><br>38:1, 65:2,<br>65:9, 65:15,<br>65:19, 65:22,<br>66:2, 69:6,<br>69:11, 70:17,<br>70:22, 73:1<br><b>said</b><br>22:4, 24:8,<br>29:19, 31:5,<br>31:8, 32:7,<br>38:20, 58:8,<br>64:21, 75:4,<br>75:7, 75:8,<br>76:4, 76:6,<br>76:15, 76:17,<br>78:4, 85:2,<br>96:17, 97:3,<br>97:5, 98:13,<br>104:17, 107:3,<br>115:6, 121:15,<br>128:3<br><b>salary</b><br>102:14<br><b>same</b><br>8:4, 11:2,<br>27:12, 31:22,<br>48:8, 48:16,<br>49:1, 49:11,<br>50:1, 55:3, | 60:20, 77:21,<br>78:4, 81:9,<br>87:20, 97:11,<br>99:20, 122:12,<br>122:13, 130:17,<br>132:18, 138:4<br><b>sampling</b><br>48:7<br><b>saving</b><br>16:8<br><b>say</b><br>11:9, 15:1,<br>15:4, 17:10,<br>19:2, 21:18,<br>27:14, 29:3,<br>30:18, 32:16,<br>34:2, 38:12,<br>38:20, 39:13,<br>40:3, 43:21,<br>44:10, 56:5,<br>56:13, 56:20,<br>57:13, 59:19,<br>62:10, 63:17,<br>63:22, 64:11,<br>65:1, 66:12,<br>71:9, 72:7,<br>74:1, 74:14,<br>74:17, 77:18,<br>80:10, 80:17,<br>82:6, 82:13,<br>82:18, 83:18,<br>87:9, 87:11,<br>88:10, 89:18,<br>90:2, 90:7,<br>90:9, 91:16,<br>92:12, 94:5,<br>95:2, 95:6,<br>95:16, 96:4,<br>98:19, 105:12,<br>106:7, 107:8,<br>107:22, 108:14,<br>108:15, 112:13,<br>115:17, 117:9,<br>118:14, 120:15,<br>121:12, 121:14,<br>121:16, 122:22,<br>128:6, 129:3,<br>131:1, 133:4, | 133:13, 134:7,<br>136:22<br><b>saying</b><br>15:16, 25:7,<br>74:2, 105:17,<br>126:2, 129:11,<br>134:8<br><b>says</b><br>17:9, 21:11,<br>21:15, 46:13,<br>48:1, 53:9,<br>65:4, 67:9,<br>68:16, 71:9,<br>71:13, 72:4,<br>83:15, 87:9,<br>88:14, 99:19,<br>102:5, 113:4,<br>113:6, 114:7,<br>114:10, 119:19,<br>120:20, 122:16,<br>124:18, 132:4,<br>132:17<br><b>school</b><br>20:16<br><b>schools</b><br>81:2, 113:14<br><b>scientist</b><br>21:12<br><b>scott</b><br>3:12<br><b>se</b><br>72:3<br><b>search</b><br>16:3, 53:13,<br>53:18, 53:21,<br>54:5, 118:17,<br>118:22, 119:1,<br>119:3<br><b>searches</b><br>15:9<br><b>searching</b><br>120:16<br><b>second</b><br>16:9, 20:9,<br>32:9, 36:20,<br>48:19, 67:16,<br>67:22, 76:16,<br>108:12, 121:21, |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 122:1, 122:14,<br>122:15, 124:17<br><b>secondary</b><br>60:1<br><b>section</b><br>14:22, 44:9,<br>44:15, 46:5,<br>57:1, 87:16,<br>88:8<br><b>sections</b><br>18:1<br><b>see</b><br>10:17, 11:5,<br>14:14, 15:19,<br>16:15, 20:9,<br>31:10, 37:1,<br>43:10, 43:16,<br>43:19, 44:1,<br>44:22, 47:15,<br>47:16, 48:2,<br>50:21, 53:6,<br>53:11, 57:3,<br>63:11, 64:21,<br>73:11, 78:9,<br>78:13, 79:5,<br>88:17, 89:4,<br>89:5, 89:10,<br>91:22, 94:11,<br>102:2, 106:6,<br>106:10, 106:13,<br>106:15, 106:20,<br>108:8, 117:5,<br>117:14, 118:4,<br>118:8, 119:3,<br>122:18, 123:15,<br>124:1, 129:20,<br>132:10, 132:19,<br>135:6, 137:7<br><b>seeing</b><br>45:3, 74:10,<br>86:16, 86:19,<br>88:21, 122:11<br><b>seek</b><br>73:13<br><b>seeking</b><br>73:1<br><b>seem</b><br>44:8 | <b>seemed</b><br>49:6<br><b>seems</b><br>71:11<br><b>seen</b><br>10:11, 10:13,<br>108:18<br><b>segment</b><br>105:10<br><b>sell</b><br>26:3<br><b>senior</b><br>41:13, 99:21,<br>103:18, 103:21,<br>111:20, 112:9,<br>112:11, 112:12,<br>114:11, 115:6<br><b>sense</b><br>24:14, 76:14,<br>94:19<br><b>senses</b><br>77:11<br><b>sensing</b><br>113:7, 113:9,<br>124:5<br><b>sensitivity</b><br>127:9<br><b>sensor</b><br>33:3, 33:5,<br>33:6, 33:7,<br>34:5, 34:6,<br>37:19, 38:7,<br>38:16, 41:20,<br>41:21, 41:22,<br>62:3, 65:5,<br>69:13, 70:14,<br>74:18, 74:20,<br>74:21, 74:22,<br>75:1, 75:8,<br>75:9, 76:6,<br>76:7, 76:9,<br>76:12, 76:13,<br>76:17, 76:19,<br>77:1, 77:9,<br>77:10, 77:18,<br>117:21, 118:2,<br>118:7, 118:12,<br>118:15, 119:4, | 119:13, 119:16,<br>119:19, 119:21,<br>120:1, 120:11,<br>122:6, 123:4,<br>123:9, 123:21,<br>124:9, 126:14,<br>127:7, 127:8,<br>129:1, 129:5,<br>129:10, 129:13,<br>129:15, 134:6<br><b>sensors</b><br>27:6, 27:22,<br>32:21, 33:2,<br>72:19, 75:4,<br>75:12, 75:16,<br>75:17, 75:18,<br>75:19, 75:21,<br>76:2, 76:3,<br>76:10, 76:22,<br>77:3, 77:16,<br>78:2, 118:17,<br>120:17, 121:6,<br>129:12<br><b>sentence</b><br>65:3, 65:11,<br>67:22, 68:11,<br>68:15, 72:4,<br>72:6, 87:20,<br>88:4, 88:8,<br>88:14, 88:21,<br>89:2, 89:6,<br>89:8, 89:10,<br>118:4, 128:8<br><b>sentences</b><br>70:13<br><b>separate</b><br>18:1, 48:5<br><b>series</b><br>43:15<br><b>servers</b><br>98:6<br><b>service</b><br>92:6<br><b>set</b><br>8:2, 31:22,<br>114:14, 139:6,<br>140:4<br><b>seven</b><br>122:17 | <b>several</b><br>10:5, 12:22,<br>22:6, 28:13,<br>29:1, 29:6,<br>42:12, 48:7,<br>56:22, 70:20,<br>85:14<br><b>share</b><br>103:2<br><b>sheet</b><br>120:7, 123:15,<br>124:6, 124:10,<br>138:7<br><b>short</b><br>79:11, 80:20,<br>81:18<br><b>shorthand</b><br>139:1<br><b>shortly</b><br>83:8<br><b>should</b><br>10:8, 17:6,<br>17:13, 19:2,<br>21:16, 27:14,<br>31:18, 37:19,<br>38:7, 68:10,<br>71:14, 122:21<br><b>show</b><br>94:7, 132:12<br><b>showing</b><br>109:15, 119:4<br><b>shown</b><br>130:15, 131:18<br><b>shows</b><br>58:22, 126:18<br><b>side</b><br>106:12, 108:9<br><b>sided</b><br>135:2<br><b>sign</b><br>17:3, 17:10<br><b>signal</b><br>46:14<br><b>signature</b><br>17:5, 138:10<br><b>signature-lapgj</b><br>140:7<br><b>signed</b><br>138:7 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>similar</b><br/> 11:8, 20:17,<br/> 80:4, 81:1,<br/> 97:11, 98:19,<br/> 101:19, 120:18<br/> <b>since</b><br/> 18:12, 19:15,<br/> 21:5, 21:21,<br/> 37:17, 38:5<br/> <b>single</b><br/> 49:2, 49:6,<br/> 57:20, 57:22,<br/> 58:22, 59:4,<br/> 59:13, 129:15,<br/> 135:1<br/> <b>sir</b><br/> 6:10, 6:19,<br/> 7:17, 10:6,<br/> 10:12, 10:17,<br/> 11:5, 14:7,<br/> 15:15, 16:12,<br/> 16:16, 20:9,<br/> 22:2, 22:19,<br/> 25:16, 25:22,<br/> 28:17, 31:16,<br/> 33:13, 36:6,<br/> 36:10, 40:7,<br/> 41:9, 42:13,<br/> 43:8, 43:10,<br/> 43:19, 44:9,<br/> 46:3, 47:6,<br/> 47:17, 47:20,<br/> 48:3, 49:2,<br/> 50:5, 50:16,<br/> 50:21, 51:15,<br/> 53:5, 53:11,<br/> 53:16, 58:13,<br/> 61:4, 64:13,<br/> 64:16, 64:21,<br/> 69:2, 78:7,<br/> 78:9, 78:19,<br/> 80:8, 83:11,<br/> 84:14, 85:1,<br/> 85:7, 89:5,<br/> 89:13, 90:8,<br/> 92:1, 93:4,<br/> 94:3, 94:10,<br/> 97:1, 98:9,</p> | <p>98:10, 100:5,<br/> 103:8, 104:21,<br/> 106:6, 106:13,<br/> 111:9, 117:11,<br/> 117:15, 118:4,<br/> 126:21, 127:22,<br/> 129:16, 129:17,<br/> 129:20, 132:10,<br/> 132:11, 132:18,<br/> 134:21, 135:2,<br/> 136:13<br/> <b>sit</b><br/> 15:3, 25:5,<br/> 25:10, 52:2,<br/> 52:12, 83:3,<br/> 92:19, 93:6,<br/> 93:17<br/> <b>situ</b><br/> 129:9<br/> <b>six</b><br/> 135:3<br/> <b>sixty-four</b><br/> 128:1<br/> <b>skill</b><br/> 35:19, 35:22,<br/> 40:20, 44:11,<br/> 44:14, 45:10,<br/> 63:20, 65:19,<br/> 71:14, 72:18,<br/> 73:9, 128:17<br/> <b>skilled</b><br/> 71:17, 71:20,<br/> 72:22<br/> <b>slash</b><br/> 121:19, 135:4<br/> <b>slide</b><br/> 102:3<br/> <b>small</b><br/> 26:5, 46:6<br/> <b>smith</b><br/> 117:14, 117:21,<br/> 118:1, 119:17,<br/> 120:10, 120:20,<br/> 120:22, 121:4,<br/> 122:4, 126:8,<br/> 128:11, 128:20,<br/> 128:21, 128:22,<br/> 129:4, 129:6,</p> | <p>129:11, 129:15<br/> <b>smith-emma</b><br/> 128:21<br/> <b>smoke</b><br/> 27:6, 27:22,<br/> 33:5, 33:6,<br/> 33:7, 33:19,<br/> 33:22, 34:5,<br/> 34:6, 34:16,<br/> 37:19, 38:7,<br/> 38:16, 39:3,<br/> 42:10, 62:3,<br/> 65:5, 69:13,<br/> 70:5, 70:14,<br/> 72:19, 73:15,<br/> 73:16, 73:18,<br/> 74:1, 74:3,<br/> 74:9, 74:20,<br/> 74:22, 75:4,<br/> 75:9, 75:12,<br/> 75:16, 75:18,<br/> 75:19, 75:21,<br/> 76:1, 76:2,<br/> 76:8, 76:9,<br/> 76:10, 76:13,<br/> 76:17, 76:20,<br/> 76:21, 77:2,<br/> 77:14, 77:17,<br/> 77:20, 77:21,<br/> 77:22, 78:3,<br/> 78:4, 78:5,<br/> 82:7, 82:14,<br/> 128:22, 131:9,<br/> 131:16, 131:17,<br/> 131:20, 132:7,<br/> 132:22, 134:6,<br/> 134:10<br/> <b>sold</b><br/> 36:19<br/> <b>sole</b><br/> 43:13<br/> <b>solved</b><br/> 88:2<br/> <b>some</b><br/> 29:16, 30:11,<br/> 45:16, 58:15,<br/> 60:6, 62:21,<br/> 76:2, 76:10,</p> | <p>77:3, 83:1,<br/> 87:15, 96:17,<br/> 99:17, 130:2<br/> <b>someone</b><br/> 40:20, 54:12,<br/> 70:20, 90:18,<br/> 93:12, 99:7<br/> <b>something</b><br/> 23:3, 24:9,<br/> 24:12, 33:15,<br/> 45:10, 49:16,<br/> 78:11, 95:3,<br/> 96:1, 96:2,<br/> 102:16, 110:9,<br/> 113:12<br/> <b>sometime</b><br/> 6:20, 37:16<br/> <b>sophisticated</b><br/> 95:22<br/> <b>sorry</b><br/> 12:21, 29:1,<br/> 31:16, 39:8,<br/> 55:15, 60:13,<br/> 63:22, 64:9,<br/> 64:13, 65:16,<br/> 71:16, 77:20,<br/> 88:18, 90:1,<br/> 92:2, 92:21,<br/> 102:7, 104:18,<br/> 106:2, 106:10,<br/> 107:1, 110:22,<br/> 120:4, 120:5,<br/> 121:15, 121:20,<br/> 123:19, 131:4,<br/> 132:10, 133:22,<br/> 134:22, 136:22<br/> <b>sort</b><br/> 130:2<br/> <b>source</b><br/> 90:4<br/> <b>speak</b><br/> 9:7, 9:21,<br/> 90:15, 90:18<br/> <b>spec</b><br/> 124:10<br/> <b>special</b><br/> 22:3, 45:16<br/> <b>specific</b><br/> 10:13, 27:8,</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 36:19, 44:17,<br>58:15, 77:3,<br>84:5, 84:21,<br>85:5, 105:2,<br>112:17, 114:6<br><b>specifically</b><br>15:6, 27:17,<br>48:18, 93:14,<br>123:14<br><b>specification</b><br>45:21, 124:9<br><b>specifications</b><br>119:12, 119:15,<br>121:12, 125:16,<br>126:6, 132:2<br><b>speculating</b><br>116:3<br><b>speculation</b><br>30:17<br><b>spencer</b><br>30:3<br><b>spire</b><br>20:20, 21:8<br><b>spoken</b><br>99:2, 104:13<br><b>spots</b><br>37:8<br><b>square</b><br>124:13<br><b>squared</b><br>124:14<br><b>stack</b><br>16:7<br><b>stacked</b><br>68:7, 68:8<br><b>stacking</b><br>68:14, 68:18<br><b>stand</b><br>52:4, 52:5,<br>85:8<br><b>stand-by</b><br>122:22, 123:3,<br>123:7, 123:8,<br>123:10, 123:11,<br>123:20, 123:22,<br>124:1, 124:7,<br>124:22, 125:6,<br>125:8, 125:10, | 125:11<br><b>standard</b><br>37:8, 66:10,<br>66:17, 68:12,<br>134:2, 134:5<br><b>standards</b><br>126:5<br><b>stands</b><br>59:10, 61:4,<br>69:2<br><b>staple</b><br>13:13<br><b>start</b><br>10:8, 28:19,<br>31:18, 37:14<br><b>starters</b><br>19:8<br><b>starting</b><br>46:12, 67:19,<br>81:4, 130:16<br><b>starts</b><br>18:3, 128:15<br><b>state</b><br>6:9, 53:6,<br>114:4, 128:16<br><b>stated</b><br>83:7, 137:11<br><b>statement</b><br>67:6, 74:4,<br>79:13, 79:17,<br>80:21, 82:5,<br>82:17, 83:10,<br>104:9<br><b>states</b><br>1:1, 66:9,<br>125:3, 125:4,<br>125:6, 125:14,<br>125:18, 125:22,<br>135:3<br><b>status</b><br>81:9<br><b>statutory</b><br>124:21, 125:1<br><b>steady-state</b><br>88:6<br><b>stereo</b><br>23:19<br><b>still</b><br>87:10, 96:3, | 134:4<br><b>stop</b><br>60:11<br><b>storage</b><br>21:16<br><b>stored</b><br>21:17<br><b>streams</b><br>132:14<br><b>street</b><br>2:4, 139:16<br><b>stretch</b><br>50:12<br><b>student</b><br>80:4, 80:11,<br>80:15<br><b>students</b><br>62:18, 79:6,<br>81:7, 82:21,<br>87:7, 87:13,<br>90:2, 112:8<br><b>stupid</b><br>110:3<br><b>subject</b><br>19:4, 23:9,<br>23:10, 37:15,<br>42:5, 42:6,<br>55:12, 55:17,<br>56:7, 56:15,<br>57:15<br><b>submission</b><br>49:22, 81:2,<br>81:13<br><b>submit</b><br>20:3, 20:6,<br>108:7, 117:5,<br>118:11, 119:12,<br>124:3<br><b>submitted</b><br>11:8, 12:4,<br>12:19, 13:14,<br>18:10, 18:12,<br>42:18, 42:21,<br>43:2, 44:6,<br>47:6, 48:17,<br>51:2, 51:6,<br>52:8, 81:10,<br>81:17, 82:19, | 83:21, 84:1,<br>85:20, 86:1,<br>86:3, 86:4,<br>91:3, 91:6,<br>91:10, 91:20,<br>94:3, 95:7,<br>95:9, 101:9,<br>107:14, 107:21,<br>108:17, 114:18,<br>115:19, 116:12,<br>117:1, 117:4,<br>117:12, 118:10,<br>121:13, 123:5,<br>129:17<br><b>substance</b><br>48:21, 136:9<br><b>substantive</b><br>10:3, 53:3<br><b>substantively</b><br>10:2<br><b>subsurface</b><br>113:6, 113:8<br><b>success</b><br>60:8, 60:12,<br>60:14<br><b>successor</b><br>89:20<br><b>suggest</b><br>70:9, 127:15<br><b>suggestion</b><br>128:21<br><b>suite</b><br>3:7, 3:15<br><b>summarizes</b><br>89:7<br><b>supersedes</b><br>102:22<br><b>supplemental</b><br>5:14, 5:18,<br>52:16<br><b>support</b><br>5:4, 5:15,<br>5:19, 16:14,<br>52:14, 52:16<br><b>suppose</b><br>75:14<br><b>supposed</b><br>12:15 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>sure</b><br>9:15, 9:20,<br>11:18, 17:20,<br>25:15, 38:5,<br>42:20, 47:21,<br>53:15, 55:2,<br>58:16, 60:5,<br>63:2, 64:7,<br>66:14, 77:8,<br>82:3, 85:21,<br>92:15, 94:11,<br>95:4, 95:15,<br>110:21, 111:3,<br>116:3, 127:20,<br>133:7<br><b>surprised</b><br>96:1<br><b>surreply</b><br>51:12<br><b>suspect</b><br>113:19<br><b>switch</b><br>98:5, 129:8<br><b>sworn</b><br>6:5, 139:7<br><b>synopsis</b><br>15:10, 15:15,<br>15:16<br><b>synthetic</b><br>39:2<br><b>system</b><br>33:20, 33:22,<br>38:16, 79:1,<br>81:11, 82:2,<br>87:6, 90:8,<br>94:10, 94:13,<br>95:11, 95:12,<br>96:1, 97:13,<br>97:14, 97:16,<br>97:19, 97:20,<br>98:2, 98:3,<br>98:12, 98:14,<br>98:17, 99:3,<br>101:17, 111:10,<br>117:3, 131:2,<br>133:20<br><b>systems</b><br>21:16, 80:4, | 81:1, 95:20,<br>97:11, 98:19,<br>101:19, 113:7,<br>113:9, 130:5,<br>130:6<br><hr/> <b>T</b><br><hr/> <b>tag</b><br>12:15, 12:17,<br>12:18<br><b>tag-teaming</b><br>93:2<br><b>take</b><br>8:18, 10:15,<br>11:4, 32:8,<br>32:10, 50:8,<br>50:11, 68:22,<br>110:16, 111:5,<br>124:16<br><b>taken</b><br>11:12, 51:1,<br>84:6, 136:7,<br>139:8<br><b>takes</b><br>46:11, 83:1<br><b>taking</b><br>124:13<br><b>talk</b><br>8:3, 16:5,<br>20:8, 32:2,<br>65:12, 73:14,<br>87:13, 88:2,<br>105:12, 135:9,<br>136:8<br><b>talked</b><br>15:20, 130:11<br><b>talking</b><br>33:2, 51:14,<br>57:6, 71:10,<br>107:16, 107:20,<br>111:9, 115:13,<br>118:6<br><b>talks</b><br>67:17, 68:1,<br>106:8, 106:14,<br>117:21, 122:6<br><b>tasks</b><br>87:4 | <b>taught</b><br>37:1, 110:13<br><b>teach</b><br>128:22<br><b>teaching</b><br>37:14, 63:19,<br>64:11, 64:18,<br>67:7<br><b>tear</b><br>47:2<br><b>tears</b><br>46:15<br><b>technical</b><br>48:22<br><b>technician</b><br>29:7, 31:9,<br>31:10, 32:5,<br>32:7, 32:9<br><b>technology</b><br>81:6, 95:20,<br>95:21, 97:4,<br>98:10, 101:4,<br>114:13<br><b>tell</b><br>9:11, 12:5,<br>13:16, 22:20,<br>36:4, 58:11,<br>71:5, 86:10,<br>123:6<br><b>telling</b><br>82:16, 99:18<br><b>tells</b><br>31:20<br><b>temperature</b><br>126:21, 127:1,<br>127:5, 129:10,<br>129:13, 132:21<br><b>temperatures</b><br>133:4<br><b>ten</b><br>116:7, 135:21<br><b>term</b><br>24:2, 33:8,<br>44:10, 45:12,<br>58:15, 85:14,<br>85:17, 123:7,<br>123:13, 123:15,<br>125:12 | <b>terms</b><br>48:22, 53:20,<br>120:18<br><b>test</b><br>32:11, 45:3,<br>45:4, 62:3, 87:8<br><b>testified</b><br>20:1<br><b>testify</b><br>35:17<br><b>testifying</b><br>19:1, 35:16<br><b>testimony</b><br>10:4, 18:14,<br>19:17, 19:22,<br>57:5, 87:22,<br>136:9, 138:4,<br>138:5, 139:9<br><b>testing</b><br>87:5, 87:11,<br>87:13, 87:15,<br>122:10, 122:17<br><b>texas</b><br>3:7, 3:8<br><b>textbooks</b><br>85:18<br><b>tgs</b><br>118:7, 118:15,<br>118:16, 119:12,<br>120:7, 120:16,<br>120:21, 123:14,<br>124:2, 126:13<br><b>th</b><br>79:7, 82:19,<br>83:8, 83:16,<br>83:18, 83:22,<br>84:19, 85:2,<br>85:8, 87:3,<br>87:11, 101:14,<br>140:5<br><b>thank</b><br>10:22, 16:7,<br>105:20, 136:6,<br>136:12, 136:15,<br>137:14, 137:16<br><b>thanks</b><br>20:14<br><b>themselves</b><br>38:1, 52:4, |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 52:6<br><b>thereabouts</b><br>30:7<br><b>thereafter</b><br>47:1, 83:8<br><b>therefore</b><br>63:19, 64:18,<br>67:7<br><b>thermal</b><br>129:8<br><b>thermodynamic</b><br>28:18<br><b>theses</b><br>81:3, 81:9,<br>81:14, 99:15,<br>99:16, 103:21<br><b>thesis</b><br>41:13, 81:8,<br>81:9, 81:17,<br>99:21, 103:18,<br>104:1, 104:2,<br>104:10, 111:17,<br>111:20, 116:13,<br>117:2<br><b>thicker</b><br>50:19, 135:2<br><b>thing</b><br>112:22, 124:4,<br>130:17<br><b>things</b><br>28:2, 35:18,<br>71:10, 77:14,<br>77:17, 77:22,<br>78:2, 78:5,<br>81:2, 100:1,<br>100:7, 108:7,<br>111:14<br><b>think</b><br>24:4, 24:20,<br>25:8, 27:4,<br>29:1, 51:14,<br>58:8, 70:12,<br>97:2, 97:5,<br>102:21, 119:2<br><b>thinking</b><br>71:18, 71:19<br><b>third</b><br>89:2 | <b>thomas</b><br>3:13<br><b>thought</b><br>31:6<br><b>three</b><br>16:15, 86:20<br><b>three-dimensional</b><br>37:5<br><b>through</b><br>19:20, 28:8,<br>40:7, 43:22,<br>45:3, 46:7,<br>46:15, 46:17,<br>54:14, 79:20,<br>101:19<br><b>throw</b><br>30:14, 30:18<br><b>thursday</b><br>1:19, 139:17<br><b>time</b><br>6:18, 8:6,<br>8:15, 9:15,<br>11:15, 11:19,<br>18:9, 18:12,<br>21:18, 22:4,<br>24:15, 24:19,<br>29:9, 29:14,<br>31:19, 33:21,<br>34:1, 46:11,<br>49:15, 79:11,<br>80:20, 81:18,<br>83:1, 97:12,<br>109:8, 113:10,<br>115:15, 119:6,<br>136:6, 136:12,<br>136:14, 137:15<br><b>times</b><br>29:1, 29:6,<br>70:20, 79:20,<br>85:15<br><b>title</b><br>78:11, 78:14,<br>78:17, 113:12,<br>131:18<br><b>today</b><br>6:13, 7:19,<br>8:6, 8:15, 9:2,<br>10:11, 10:15, | 11:4, 12:7,<br>12:13, 13:1,<br>13:8, 13:18,<br>14:2, 15:3,<br>25:6, 25:10,<br>25:17, 27:4,<br>27:8, 49:10,<br>49:12, 52:2,<br>52:12, 80:14,<br>83:3, 83:11,<br>92:19, 93:6,<br>93:17, 95:22,<br>115:22, 136:6,<br>136:8<br><b>today's</b><br>11:11, 23:17,<br>125:15, 136:9<br><b>together</b><br>32:13, 51:1,<br>74:2, 93:4,<br>130:18<br><b>told</b><br>31:18, 32:9<br><b>top</b><br>25:8, 67:21,<br>68:18, 69:8,<br>78:12, 78:16,<br>102:22, 128:15,<br>130:16, 132:18<br><b>topic</b><br>137:6<br><b>topics</b><br>49:6<br><b>towards</b><br>88:19, 118:1<br><b>track</b><br>112:21<br><b>trade</b><br>7:9<br><b>trademark</b><br>1:1, 7:6,<br>42:18, 43:2,<br>108:17<br><b>transcript</b><br>4:14, 75:9,<br>111:2<br><b>transcription</b><br>138:5 | <b>transferred</b><br>79:10, 79:16,<br>80:18<br><b>transient</b><br>45:6, 45:8,<br>46:6, 46:11,<br>46:14, 46:22<br><b>transients</b><br>88:7, 88:11<br><b>transmitter</b><br>131:21<br><b>treating</b><br>30:2<br><b>trial</b><br>1:3, 7:6, 7:15,<br>8:22, 12:19,<br>51:18, 101:10,<br>108:18, 115:19<br><b>tripping</b><br>73:7, 73:12<br><b>true</b><br>56:19, 77:13,<br>77:15, 84:10,<br>84:12, 94:20,<br>99:20, 133:7,<br>138:4, 139:9<br><b>try</b><br>11:18, 16:1,<br>32:1, 109:2,<br>110:5<br><b>trying</b><br>22:2, 22:3,<br>25:15, 49:9,<br>61:13, 77:19<br><b>turn</b><br>88:16, 89:3<br><b>turned</b><br>45:5, 45:9,<br>47:5<br><b>turning</b><br>46:21<br><b>twice</b><br>30:11<br><b>two</b><br>11:7, 11:22,<br>17:16, 17:22,<br>18:1, 20:19,<br>47:6, 47:10, |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 48:5, 48:8,<br>52:3, 70:13,<br>89:1, 113:14,<br>129:12<br><b>type</b><br>41:21, 74:18,<br>75:13, 83:2,<br>99:20, 116:18<br><b>types</b><br>23:1, 25:2<br><b>typo</b><br>17:12, 119:9,<br>121:1<br><b>typos</b><br>52:22                                                                                                                                                                                                                                                                                                   | 53:15, 53:16,<br>58:9, 58:12,<br>58:16, 58:18,<br>58:20, 66:5,<br>77:8, 78:19,<br>80:22, 82:2,<br>85:15, 91:4,<br>92:16, 96:3,<br>99:6, 99:11,<br>100:8, 100:11,<br>100:16, 107:10,<br>123:11, 129:4<br><b>understanding</b><br>49:5, 58:13,<br>71:16, 78:22,<br>81:12, 95:19,<br>97:6, 97:9,<br>100:20<br><b>understood</b><br>8:12, 13:3,<br>14:4, 26:21,<br>42:20, 44:11,<br>44:13, 128:18<br><b>unheated</b><br>132:17<br><b>unit</b><br>23:16, 37:3,<br>45:9, 82:7,<br>82:14, 122:21<br><b>united</b><br>1:1, 125:3,<br>125:4, 125:5,<br>125:13, 125:18,<br>125:22, 135:3<br><b>units</b><br>73:5, 73:6,<br>73:13<br><b>universities</b><br>62:12, 62:18,<br>98:20, 99:14,<br>105:7, 114:14<br><b>university</b><br>5:8, 20:20,<br>21:1, 21:5,<br>40:11, 40:14,<br>40:17, 78:12,<br>80:1, 80:3,<br>80:8, 80:9, | 80:15, 80:19,<br>81:15, 81:16,<br>82:15, 90:16,<br>92:7, 92:10,<br>96:14, 97:7,<br>97:10, 97:12,<br>97:14, 97:15,<br>97:21, 98:12,<br>98:15, 98:18,<br>99:4, 99:16,<br>101:18, 103:3,<br>103:22, 104:14,<br>104:19, 109:2,<br>109:14, 112:1,<br>113:13, 113:15,<br>114:4<br><b>university's</b><br>81:10, 113:5<br><b>unless</b><br>9:8, 29:2,<br>31:20<br><b>until</b><br>9:7, 94:13<br><b>unusual</b><br>100:3<br><b>usb</b><br>35:3, 135:9<br><b>use</b><br>22:2, 23:4,<br>24:10, 24:13,<br>26:3, 36:13,<br>39:16, 39:17,<br>44:16, 49:12,<br>54:9, 62:19,<br>108:11, 119:1,<br>126:22, 127:17,<br>128:5<br><b>user</b><br>68:6, 99:9<br><b>uses</b><br>122:6, 130:5<br><b>using</b><br>27:22, 37:6,<br>65:18, 117:21,<br>129:14, 135:12,<br>135:15, 135:18 | <b>value</b><br>127:1, 127:4<br><b>values</b><br>127:2<br><b>vapor</b><br>42:1, 118:3,<br>120:2, 120:19,<br>127:12<br><b>variation</b><br>126:18<br><b>various</b><br>59:5, 59:12,<br>65:20, 118:3,<br>120:2, 120:20,<br>127:4<br><b>vehicles</b><br>19:9<br><b>vernacular</b><br>23:17, 25:22<br><b>version</b><br>16:22, 17:15,<br>26:17, 49:16,<br>94:14<br><b>versus</b><br>24:22, 99:8<br><b>videos</b><br>61:18, 62:2<br><b>visibility</b><br>106:13<br><b>voc</b><br>33:3, 75:19,<br>75:21, 76:2,<br>76:6, 76:9,<br>76:10, 76:12,<br>76:17, 76:19,<br>76:22, 77:1,<br>77:3, 77:10,<br>77:16, 77:18,<br>78:2<br><b>vocs</b><br>75:21, 75:22,<br>76:7, 76:9,<br>76:20, 77:4,<br>77:13<br><b>void</b><br>35:6<br><b>volatile</b><br>75:17, 77:11, |
| <hr/> <b>U</b> <hr/> <b>uh-huh</b><br>101:15<br><b>ul</b><br>125:16, 126:6<br><b>umbrella</b><br>65:18<br><b>unable</b><br>32:7<br><b>unclear</b><br>108:2<br><b>under</b><br>14:12, 94:8,<br>106:12, 108:11,<br>124:17, 132:6<br><b>undergraduate</b><br>41:14, 80:3,<br>81:8, 100:13,<br>116:15<br><b>underneath</b><br>53:9<br><b>understand</b><br>7:17, 8:7, 9:3,<br>9:5, 9:9, 10:6,<br>11:13, 11:21,<br>12:10, 13:10,<br>13:21, 24:2,<br>26:5, 26:10,<br>28:18, 43:1,<br>44:5, 45:11,<br>47:9, 50:5,<br>51:4, 53:9, |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <hr/> <b>V</b> <hr/> <b>vague</b><br>22:16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 120:19<br><b>voltage</b><br>124:11, 124:13,<br>124:18<br><b>volts</b><br>124:11, 124:19                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>we'll</b><br>8:16, 11:18<br><b>we're</b><br>10:14, 11:3,<br>32:1, 95:4<br><b>we've</b><br>47:19, 50:7,<br>136:7<br><b>weather</b><br>9:22<br><b>weeks</b><br>81:19<br><b>weights</b><br>67:19<br><b>went</b><br>45:3, 79:20,<br>94:16, 120:10,<br>120:16, 137:10<br><b>weren't</b><br>25:7<br><b>whatever</b><br>117:3<br><b>whereof</b><br>140:4<br><b>whereupon</b><br>136:3<br><b>whether</b><br>24:21, 60:22,<br>61:8, 61:12,<br>100:1, 108:2,<br>113:22<br><b>whole</b><br>83:20, 100:4,<br>103:2, 125:1<br><b>wide</b><br>127:9<br><b>wider</b><br>103:3<br><b>wired</b><br>130:6, 130:18,<br>131:2<br><b>wireless</b><br>130:1, 130:2,<br>130:5, 130:11,<br>131:9, 131:21<br><b>wirelessly</b><br>130:19<br><b>wise</b><br>101:4 | <b>wish</b><br>67:3<br><b>wished</b><br>26:3<br><b>within</b><br>6:20, 79:10,<br>81:18, 112:17,<br>139:3<br><b>without</b><br>134:6<br><b>witness</b><br>3:3, 18:13,<br>71:7, 111:2,<br>136:15, 136:17,<br>137:16, 139:6,<br>139:10, 140:4<br><b>wondering</b><br>48:5<br><b>wong</b><br>3:4, 4:4, 9:19,<br>9:21, 10:22,<br>22:16, 28:7,<br>31:14, 33:1,<br>34:18, 38:18,<br>39:19, 45:18,<br>48:15, 50:10,<br>56:10, 58:7,<br>60:17, 60:20,<br>61:22, 62:14,<br>66:21, 67:14,<br>69:5, 72:2,<br>72:10, 77:5,<br>83:6, 84:11,<br>86:9, 90:22,<br>92:14, 102:12,<br>104:7, 107:2,<br>109:4, 110:18,<br>110:20, 111:1,<br>117:19, 120:13,<br>123:1, 130:21,<br>133:21, 136:18,<br>137:13<br><b>wood</b><br>3:5, 136:3<br><b>word</b><br>22:2, 44:5,<br>44:16, 45:16,<br>65:7, 70:5, | 74:10, 88:7,<br>131:4<br><b>words</b><br>24:19, 78:15<br><b>work</b><br>9:14, 18:14,<br>25:5, 26:13,<br>27:5, 27:17,<br>28:1, 28:9,<br>29:16, 33:9,<br>38:15, 88:9,<br>93:4, 108:8,<br>108:14<br><b>worked</b><br>20:15, 20:18,<br>21:7, 21:15,<br>23:2, 26:13,<br>38:10, 38:12,<br>39:21, 81:16,<br>99:3, 111:21<br><b>working</b><br>87:10<br><b>works</b><br>28:19, 28:21,<br>97:7, 97:10<br><b>world</b><br>101:19, 103:3,<br>105:7<br><b>worldwide</b><br>101:20<br><b>wouldn't</b><br>98:13, 109:17,<br>109:18, 109:20,<br>109:21, 110:4,<br>110:6, 121:14,<br>121:16<br><b>write</b><br>16:21, 42:15<br><b>writing</b><br>116:11, 126:6<br><b>written</b><br>85:18, 106:21<br><b>wrong</b><br>29:21, 29:22,<br>74:11<br><b>wrote</b><br>16:22, 58:1 |
| <b>W</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Y</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>wait</b><br>64:12, 83:12<br><b>want</b><br>38:12, 71:20,<br>100:6, 103:7,<br>105:8, 110:17,<br>110:21, 111:3,<br>111:13, 113:1,<br>123:13, 136:5,<br>136:6<br><b>wanted</b><br>109:21<br><b>wanting</b><br>70:1<br><b>wants</b><br>129:4<br><b>warn</b><br>33:16<br><b>warranty</b><br>35:6<br><b>washing</b><br>22:22<br><b>washington</b><br>1:18, 2:5,<br>139:17<br><b>watch</b><br>61:18, 62:2<br><b>water</b><br>118:3, 120:2,<br>120:19, 127:12,<br>133:8<br><b>watt</b><br>124:15, 124:20<br><b>way</b><br>16:8, 51:6,<br>77:21, 78:4,<br>100:21, 101:1,<br>109:10, 121:2,<br>134:18, 140:1<br><b>ways</b><br>59:5, 59:12 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 74:10, 88:7,<br>131:4<br><b>yeah</b><br>6:14, 20:18,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 26:19, 100:10,<br>102:8, 103:15,<br>103:17, 105:2,<br>107:5, 111:4,<br>115:15, 122:5<br><b>year</b><br>6:21, 91:22<br><b>years</b><br>23:21, 24:17,<br>28:13, 32:16,<br>34:4, 34:14,<br>34:20, 35:2,<br>35:8, 35:12,<br>37:2, 109:6,<br>116:7, 117:7,<br>122:3<br><b>yellow</b><br>12:17, 12:18<br><b>young</b><br>1:22, 2:11,<br>23:18, 139:2<br><b>yourself</b><br>16:21, 35:21,<br>42:15<br><hr/> 0<br><hr/> 00<br>137:17, 139:18<br>00003<br>1:11, 4:16,<br>5:17, 5:21<br>00004<br>1:14, 4:18,<br>5:17<br>0188911<br>5:7<br>0276763<br>5:13, 135:4<br>04<br>50:13<br>06<br>1:20, 139:18<br>07<br>5:9, 86:20,<br>87:3<br><hr/> 1<br><hr/> 1<br>136:1, 136:2 | 10<br>4:16, 4:18,<br>50:13, 50:14,<br>68:9<br>100<br>133:12<br>1001<br>5:2, 12:4,<br>13:15<br>1002<br>5:3, 16:13,<br>50:21, 51:22,<br>52:11, 55:4,<br>55:6, 55:18,<br>56:21, 82:6,<br>82:10, 101:12,<br>106:2, 107:17,<br>112:16, 118:11,<br>122:15, 126:10,<br>131:13, 131:19,<br>133:16, 136:21<br>101<br>104:22<br>1011<br>5:6, 63:4,<br>63:15, 66:15<br>1012<br>5:8, 78:8,<br>80:18, 85:11,<br>86:4, 94:4,<br>95:7, 111:11,<br>111:15<br>1014<br>5:10, 117:12<br>1015<br>5:11, 129:17<br>1020<br>5:12, 134:22,<br>135:1<br>1023<br>5:14, 5:18,<br>47:14, 49:12,<br>50:18, 52:1,<br>52:11, 53:5,<br>55:7, 55:8,<br>55:14, 55:20,<br>58:21, 59:21,<br>64:10, 126:11, | 127:16, 127:21,<br>133:16<br>106<br>64:15, 70:9,<br>72:9, 72:12<br>11<br>111:6<br>11, 674, 745<br>1:12, 12:6<br>11, 674, 746<br>1:15, 5:2,<br>13:17<br>111<br>3:15<br>114<br>127:15, 127:22,<br>128:7, 128:9,<br>128:14, 129:3<br>117<br>5:10<br>12<br>5:2, 32:20,<br>111:7<br>129<br>5:11<br>13<br>66:15, 119:19<br>135<br>5:13<br>136<br>4:4<br>140<br>1:21<br>1400<br>3:7<br>15<br>32:16, 46:8,<br>46:16, 46:17,<br>109:6<br>16<br>5:5, 118:2,<br>122:3<br>17<br>5:9, 50:14,<br>78:20, 79:7,<br>82:16, 82:19,<br>83:8, 83:16,<br>83:18, 83:22, | 85:2, 85:8,<br>86:5, 120:20<br>18<br>53:6, 55:13,<br>55:20, 101:14,<br>120:21<br>1825<br>2:4, 139:16<br>186<br>118:8, 118:16,<br>119:5, 120:16<br>1884<br>3:16<br>1945<br>30:1<br>1946<br>29:14, 29:20<br>1978<br>21:8<br>1979<br>21:5, 21:8,<br>21:19, 21:20,<br>21:22<br>1980<br>37:16, 37:17,<br>38:5<br>1983<br>118:18, 118:22,<br>119:5, 121:10,<br>121:13<br>1990<br>29:11, 29:14,<br>30:5, 34:1,<br>81:4, 115:3,<br>115:12, 115:17<br>1b<br>130:15<br>1d<br>45:7<br><hr/> 2<br><hr/> 2<br>137:17, 139:18<br>20<br>23:21, 24:17,<br>46:19, 86:20,<br>87:3, 87:11<br>2000<br>108:4 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>20000833</b><br>94:9<br><b>20006</b><br>2:5<br><b>2003</b><br>17:9, 17:10,<br>92:2<br><b>2005</b><br>101:14<br><b>2007</b><br>78:20, 79:2,<br>79:4, 79:7,<br>82:16, 83:8,<br>85:8, 86:5,<br>86:20, 87:3,<br>90:12, 90:13,<br>94:22, 95:21,<br>97:4, 106:17,<br>106:21, 107:11,<br>108:1, 108:3<br><b>2009</b><br>5:7, 32:17<br><b>2010</b><br>106:6, 106:7,<br>106:9, 106:14,<br>106:19, 106:22,<br>107:9, 108:5<br><b>2011</b><br>32:20<br><b>2012</b><br>5:13, 135:4<br><b>2014</b><br>79:12, 84:19,<br>92:21, 93:8,<br>93:19, 117:9<br><b>202</b><br>2:6<br><b>2023</b><br>17:14, 17:15,<br>55:7, 92:2, 92:3<br><b>2024</b><br>1:11, 1:14,<br>1:19, 4:16,<br>4:18, 5:17,<br>5:21, 10:16,<br>11:4, 47:16,<br>48:1, 48:19,<br>139:17, 140:5, | 140:13<br><b>204</b><br>17:6<br><b>2047</b><br>94:9<br><b>205</b><br>18:3<br><b>206</b><br>52:15, 55:21,<br>57:7<br><b>207</b><br>57:2<br><b>212</b><br>133:11<br><b>216</b><br>107:16<br><b>218</b><br>126:16<br><b>219</b><br>121:22, 122:15<br><b>2200</b><br>2:6<br><b>228</b><br>3:9<br><b>23</b><br>46:4<br><b>242</b><br>3:17<br><b>25</b><br>84:19, 87:16,<br>124:14<br><b>26</b><br>66:15, 67:15<br><b>260</b><br>102:4, 102:7<br><b>27</b><br>1:19, 139:17<br><b>271</b><br>113:3<br><hr/> <b>3</b><br><hr/> <b>30</b><br>124:12, 124:15,<br>140:5<br><b>301</b><br>3:15<br><b>304</b><br>131:18 | <b>306</b><br>132:11, 137:7<br><b>31</b><br>140:13<br><b>32</b><br>46:13<br><b>34</b><br>34:4, 34:14,<br>34:20, 35:2,<br>35:8, 35:12<br><b>374</b><br>52:15, 55:21,<br>57:7<br><hr/> <b>4</b><br><hr/> <b>4,383,158</b><br>14:14<br><b>4,496,817</b><br>5:10, 117:13<br><b>40</b><br>133:1<br><b>400</b><br>21:15<br><b>41</b><br>136:1<br><b>420</b><br>2:6<br><b>43</b><br>4:19<br><b>47</b><br>5:17<br><b>48</b><br>5:21, 68:3<br><hr/> <b>5</b><br><hr/> <b>5,455,507</b><br>4:19, 43:10<br><b>50</b><br>129:6<br><b>50309</b><br>3:16<br><b>51</b><br>82:6, 82:10<br><b>515</b><br>3:17<br><b>52</b><br>82:11, 83:15,<br>111:6, 119:20 | <b>53</b><br>111:7<br><b>542586</b><br>1:20<br><b>5806</b><br>131:10, 131:14<br><b>59</b><br>64:7, 64:10,<br>64:13, 136:2<br><hr/> <b>6</b><br><hr/> <b>63</b><br>5:7<br><b>64</b><br>127:22<br><b>65</b><br>128:15<br><b>6605</b><br>3:9<br><hr/> <b>7</b><br><hr/> <b>713</b><br>3:9<br><b>717</b><br>3:7<br><b>745</b><br>12:8, 14:11,<br>14:22, 40:19,<br>52:17, 54:18,<br>54:21, 57:16,<br>57:18, 58:5,<br>59:1, 59:13,<br>60:16, 61:2,<br>61:14, 61:16,<br>61:20, 62:8,<br>62:11, 62:17,<br>74:8, 74:12<br><b>746</b><br>13:19, 14:22,<br>40:19, 52:18,<br>54:18, 54:21,<br>57:16, 57:19,<br>58:5, 59:1,<br>59:13, 60:16,<br>61:2, 61:14,<br>61:17, 61:20,<br>62:8, 62:11,<br>62:17, 74:8, |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <p>74:13</p> <p><b>77002</b></p> <p>3:8</p> <p><b>78</b></p> <p>5:9</p> <hr/> <p><b>8</b></p> <hr/> <p><b>8,446,048</b></p> <p>5:11, 129:18</p> <p><b>816</b></p> <p>118:16, 119:13,</p> <p>120:8, 120:21,</p> <p>121:3, 123:14,</p> <p>124:2, 126:13</p> <p><b>835</b></p> <p>124:19, 124:20</p> <p><b>876</b></p> <p>52:15, 55:21,</p> <p>57:7</p> <p><b>8900</b></p> <p>3:17</p> <p><b>8th</b></p> <p>30:1</p> <hr/> <p><b>9</b></p> <hr/> <p><b>9</b></p> <p>1:20, 139:18</p> <p><b>96</b></p> <p>84:4</p> <p><b>98</b></p> <p>84:15</p> <p><b>99</b></p> <p>121:18, 121:19</p> |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|



Russell T. Wong, Esquire  
Blank Rome LLP (Houston)  
717 Texas Avenue Suite 1400  
Houston, TX 77002

Re: Deposition of **Mark N. Horenstein, Ph.D.**  
Date: 6/27/2024  
Case: College Products, Inc. -v- Intirion Corporation (PTAB)

Dear Sir/Madam,

Attached please find the above-referenced deposition transcript. If applicable, signature is required within 30 days from the date of receipt of this letter.

In accordance with the disposition of signature at the deposition or the pertinent jurisdictional rules, the deponent should follow these instructions to complete the Errata Sheet:

- (1) Read the transcript and indicate any corrections or changes in ink on the enclosed Errata Sheet. Please include page and line numbers. If more space is needed for corrections, please use a blank sheet of paper. If no corrections or changes are necessary, please indicate "no corrections" or "no changes" on the Errata Sheet.
- (2) Sign and date the Errata Sheet and Acknowledgement of Deponent/Affiant pages.
- (3) Please return the executed Errata Sheet and Acknowledgement pages to the address indicated below, submit via fax (888-503-3767) or email ([transcripts@planetdepos.com](mailto:transcripts@planetdepos.com)).

A copy of this letter and the returned signature pages, if any, will be distributed to counsel.

Sincerely,

Production Department  
Planet Depos, LLC  
451 Hungerford Drive  
Suite 400  
Rockville, Maryland 20850

No. 542586

Re: Deposition of **Mark N. Horenstein, Ph.D.**  
Date: 6/27/2024  
Case: College Products, Inc. -v- Intirion Corporation (PTAB)  
Return to: transcripts@planetdepos.com

| Page | Line | Correction/Change and Reason                                                  |
|------|------|-------------------------------------------------------------------------------|
| 28   | 12   | "prepared" to "repaired" / Transcription error                                |
| 36   | 21   | "a paper" to "on paper" / Transcription error. Reflects testimony at 28:16-17 |
| 45   | 13   | "And again" to "Yes and again" / Transcription error                          |
| 103  | 20   | "No, that's not my knowledge" to "No, that's not my opinion. It's based on my |
|      |      | knowledge" / Transcription error/clarification                                |
| 112  | 19   | "census" to "CENSSIS" / Transcription error                                   |
|      |      |                                                                               |
|      |      |                                                                               |
|      |      |                                                                               |
|      |      |                                                                               |
|      |      |                                                                               |
|      |      |                                                                               |
|      |      |                                                                               |
|      |      |                                                                               |
|      |      |                                                                               |
|      |      |                                                                               |
|      |      |                                                                               |
|      |      |                                                                               |
|      |      |                                                                               |
|      |      |                                                                               |
|      |      |                                                                               |
|      |      |                                                                               |
|      |      |                                                                               |

July 12, 2024  
(Date)

  
(Signature)

