

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

UPSTREAM DATA INC.,

Petitioner

v.

CRUSOE ENERGY SYSTEMS, LLC,

Patent Owner

Patent No. 11,574,372

Post-Grant Review

SECOND DECLARATION OF SYLVIA HALL-ELLIS, PH.D.

I. INTRODUCTION

1. My name is Sylvia D. Hall-Ellis. I have been retained as an expert on behalf of Upstream Data, Incorporated (hereafter “Upstream” or “Petitioner”).

2. I have written this report on behalf of Patent Owner to provide my expert opinion regarding the authenticity and public availability of several publications. My report sets forth my opinions in detail and provides the basis for my opinions regarding the public availability of these publications.

3. I reserve the right to supplement or amend my opinions, and bases for them, in response any additional evidence, testimony, discovery, argument, and/or other additional information that may be provided to me after the date of this report.

4. I am being compensated for my time spent working on this matter at my normal consulting rate of \$350 per hour, plus reimbursement for any additional reasonable expenses. My compensation is not in any way tied to the content of this report, the substance of my opinions, or the outcome of this litigation. I have no other interests in this proceeding or with any of the parties.

5. All of the materials that I considered are discussed explicitly in this declaration.

II. QUALIFICATIONS

6. My knowledge, skill, experience, training, and education in the fields of library services, information science, cataloging practices, and library operations were laid out in my original Declaration. (§§6-8).

7. As I explained in my original Declaration, I have a Master of Library Science from the University of North Texas in 1972 and a Ph.D. in Library and Information Science from the University of Pittsburgh in 1985. (*Id.*, §6.) I have been employed as a professional librarian since 1966. (*Id.*) Over the span of the last fifty years, I have held various positions in the field of library and information resources and have served as a committee and board member for various organizations within my field. (*Id.*, §7) I have given over one hundred presentations in the field, including several on library cataloguing systems and MARC standards. (*Id.*, §8.)

III. PRELIMINARIES

8. *Scope of this declaration.* I am not an attorney and will not offer opinions on the law. I am, however, rendering my expert opinion on the authenticity of the documents referenced herein and on when and how each of these documents was disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art, exercising reasonable diligence, could have located the documents before on or around the listed dates of their respective publications below.

9. I am informed by counsel that a publication qualifies as publicly accessible as of the date it was disseminated or otherwise made available such that a person interested in and ordinarily skilled in the relevant subject matter could locate it through the exercise of ordinary diligence.

10. *Persons of ordinary skill in the art.* I am told by counsel that the subject matter of this proceeding generally relates to United States Patent No. 11,574,372 that describes the Technical Field of the patent as “blockchain mining at an oil or gas facility.”

11. I have been informed by counsel that a “person of ordinary skill in the art at the time of the inventions” is a hypothetical person who is presumed to be familiar with the relevant field and its literature at the time of the inventions. This hypothetical person is also a person of ordinary creativity, capable of understanding the scientific principles applicable to the pertinent field.

12. I understand that the Petition proposes that “A POSITA would have a degree in chemical engineering, petroleum engineering, process engineering, mechanical engineering, or a similar field with 1-2 years of experience in designing power generation systems, Blockchain mining systems, or other comparable hands-on experience. ... Alternatively, a person having 3-5 years of experience in the Blockchain mining industry would also qualify as a POSITA. ... Additional education could substitute for professional experience, or vice versa....”

13. *YouTube*. An online video sharing and social media platform launched in 2005, *YouTube* is owned by Google and is the second most visited website in the world after Google Search.¹ YouTube has more than 2.5 billion monthly users,² who collectively watch more than one billion hours of videos daily.³

14. *YouTube* has expanded beyond the core website into mobile apps, network television, and the ability to link with other platforms. Video categories on *YouTube* include (but are not limited to) music videos, video clips, news, short films, feature films, songs, documentaries, movie trailers, teasers, live streams, and vlogs. A significant amount of *YouTube* content is generated by individuals, including collaborations between YouTubers and corporate sponsors.

IV. EXHIBIT 2014 (“BARBOUR”)

15. The YouTube video titled “180kw Off-Grid Bitcoin Mine Walkthrough with Steve Barbour” (hereafter “Barbour”) posted to the Internet⁴ on July 13, 2022 (see Attachment 1A). The Barbour YouTube video plays for 12

¹ <https://en.wikipedia.org/wiki/YouTube>

² “Top Social Media Statistics and Trends Of 2024 – Forbes Advisor.” *Forbes*, <https://www.forbes.com/advisor/business/social-media-statistics/> (Retrieved April 13, 2024).

³ Goodrow, Cristos (February 27, 2017). “[You know what's cool? A billion hours.](#)” Archived from the original on August 6, 2020; retrieved April 19, 2021 – via YouTube.

⁴ https://www.youtube.com/watch?v=q_1jrIzTvMQ

minutes and 5 seconds and has been viewed 8,394 times. The Barbour YouTube video was made by Upstream Data, Inc. (Lloydminster, Saskatchewan, Canada).⁵

16. For the foregoing reasons, it is my opinion that Exhibit 2014 was publicly accessible to persons interested in and ordinarily skilled in the art exercising reasonable diligence no later than July 13, 2022 (if not sooner).

V. EXHIBIT 2016 (“SIGALOS”)

17. Exhibit 2016 is an article titled “These 23-year-old Texans Made \$4 Million Last Year Mining Bitcoin off Gas from Oil Drilling” written by MacKensie Sigalos (hereafter “Sigalos”) and issued on February 12, 2022, by the Crypto Decoded, a subsidiary of CNBC. Exhibit 2016 is a true and correct copy of the website from which I downloaded the Sigalos article.⁶ Specifically, the text of Exhibit 2016 is complete; no pages are missing, and the text on each page appears to flow seamlessly from one page to the next; further, there are no visible alterations to Exhibit 2016 that I compared to what is currently accessible on the Internet.

18. Each page in Exhibit 2016 includes the title on the left-hand side of the page and the URL (or web address) from which it was obtained on the right-

⁵ <https://upstreamdata.com/>

⁶ <https://www.cnn.com/2022/02/12/23-year-old-texans-made-4-million-mining-bitcoin-off-flared-natural-gas.html>

hand side of the page. Further, Exhibit 2016 was found within the custody of the issuing news organization (“CNBC”), a place where, if authentic, a copy of this new article would likely be. Exhibit 2016 is a true and correct copy in a condition that creates no suspicion about its authenticity.

19. A news article exhibits the following characteristics: the news article is attributed to a creator or author (in this case MacKenzie Sigalos) who affixes a date of creation (in this case February 12, 2022) and publishes the document through a news outlet (in this case the *Crypto Decoded* website, a subsidiary of CNBC).

20. Based on finding a digital copy of Exhibit 2016 on the Internet, it is my opinion that the news article titled “These 23-year-old Texans Made \$4 Million Last Year Mining Bitcoin off Gare Gas from Oil Drilling” was available to the public on February 12, 2022, as indicated on the first page of the document. It is also my opinion that there is no reason to doubt the authenticity of Exhibit 2016 given its appearance, contents, and the web address from which it was obtained.

VI. EXHIBIT 2017 (“YANG”)

21. Exhibit 2017 is an article titled “Bitcoin in the Wilderness” written by Stephanie Yang (hereafter “Yang”) and issued on March 29, 2019, by the *Wall Street Journal*. Exhibit 2017 is a true and correct copy of the website from which I

downloaded the Yang article.⁷ Specifically, the text of Exhibit 2017 is complete; no pages are missing, and the text on each page appears to flow seamlessly from one page to the next; further, there are no visible alterations to Exhibit 2017 that I compared to what is currently accessible on the Internet.

22. Each page of Exhibit 2017 includes the title on the left-hand side of the page and the URL (or web address) from which it was obtained on the right-hand side of the page. Further, Exhibit 2017 was found within the custody of the issuing news organization (“the *Wall Street Journal*”), a place where, if authentic, a copy of this news article would likely be. Exhibit 2017 is a true and correct copy in a condition that creates no suspicion about its authenticity.

23. A news article exhibits the following characteristics: the news article is attributed to a creator or author (in this case Stephanie Yang) who affixes a date of creation (in this case March 29, 2019) and publishes the document through a news outlet (in this case the *Wall Street Journal* website).

24. Based on finding a digital copy of Exhibit 2017 on the Internet, it is my opinion that the news article titled “Bitcoin in the Wilderness” was available to the public on March 29, 2019, as indicated on the first page of the document. It is also my opinion that there is no reason to doubt the authenticity of Exhibit 2017 given its appearance, contents, and the web address from which it was obtained.

⁷ <https://www.wsj.com/articles/bitcoin-in-the-wilderness-11553860802>

VII. EXHIBIT 2018 (“WILMOTH”)

25. Exhibit 2018 is an article titled “Pipe Dream: Analysts Mull Natural Gas-Powered Bitcoin Mining Operation” written by Josiah Wilmoth (hereafter “Wilmoth”) and issued on April 16, 2018, by CNN. Exhibit 2018 is a true and correct copy of the website from which I downloaded the Wilmoth article.⁸ Specifically, the text of Exhibit 2018 is complete; no pages are missing, and the text on each page appears to flow seamlessly from one page to the next; further, there are no visible alterations to Exhibit 2018 that I compared to what is currently accessible on the Internet.

26. Each page of Exhibit 2018 includes the title on the left-hand side of the page and the URL (or web address) from which it was obtained on the right-hand side of the page. Further, Exhibit 2018 was found within the custody of the issuing news organization (“CNN”), a place where, if authentic, a copy of this news article would likely be. Exhibit 2018 is a true and correct copy in a condition that creates no suspicion about its authenticity.

27. A news article exhibits the following characteristics: the news article is attributed to a creator or author (in this case Josiah Wilmoth) who affixes a date of creation (in this case April 16, 2018) and publishes the document through a

⁸ <https://www.ccn.com/pipe-dream-analysts-mull-natural-gas-powered-bitcoin-mining-operation/>

news outlet (in this case the CNN website).

28. Based on finding a digital copy of Exhibit 2018 on the Internet, it is my opinion that the news article titled “Pipe Dream: Analysts Mull Natural Gas-Powered Bitcoin Mining Operation” was available to the public on April 16, 2018, as indicated on the first page of the document. It is also my opinion that there is no reason to doubt the authenticity of Exhibit 2018 given its appearance, contents, and the web address from which it was obtained.

VIII. EXHIBIT 2019 (“CAVNESS”)

29. The YouTube video of the TedTalk – Boston presentation titled “Turning Fireballs into Bits and Bitcoins” presented by Cully Cavness (hereafter “Cavness”) was posted to the Internet⁹ on November 14, 2022 (see Attachment 5A). The Cavness YouTube video plays for 17 minutes and 11 seconds and has been viewed 1,537 times. The Cavness YouTube video was presented as part of the Planetary Stewardship Event and was presented at the Codman Academy (Dorchester, Massachusetts) on November 14, 2022.¹⁰

30. For the foregoing reasons, it is my opinion that Exhibit 2019 was publicly accessible to persons interested in and ordinarily skilled in the art exercising reasonable diligence no later than November 14, 2022 (if not sooner).

⁹ <https://www.youtube.com/watch?v=0CerPYbKx78>

¹⁰ <https://upstreamdata.com/>

IX. EXHIBIT 2020 (“MELLERUD”)

31. Exhibit 2020 is an article titled “Bitcoin Mining Using Stranded Natural Gas is the Most Cost-Effective Way to Reduce Emissions” written by Jaran Mellerud and Anders Helseth (hereafter “Mellerud”) and issued on September 5, 2022, by K33 Research (Oslo, Norway).¹¹ Exhibit 2020 is a true and correct copy of the Mellerud document that I received from counsel (PGR2023-00039 UpStream Data, Ex. 2020 page 1 through PGR2023-00039 Upstream Data, Ex. 2020 page 8). I compared Exhibit 2020 with the article as it appeared on the K33 Research website¹² and determined that the content is identical. Specifically, the text of Exhibit 2020 is complete; no pages are missing, and the text on each page appears to flow seamlessly from one page to the next; further, there are no visible alterations to Exhibit 2020 that I compared to what is currently accessible on the Internet.

32. Each page of Exhibit 2020 includes the title at the top of each page and the URL (or web address) from which it was obtained appears at the bottom of each page. Further, Exhibit 2020 was found within the custody of the issuing research organization (“K33 Research”), a place where, if authentic, a copy of this document would likely be. Exhibit 2020 is a true and correct copy in a condition

¹¹ <https://k33.com/research>

¹² <https://k33.com/research/archive/articles/bitcoin-mining-using-stranded-natural-gas-is-the-most-cost-effective-way-to>

that creates no suspicion about its authenticity.

33. A news article exhibits the following characteristics: the research article is attributed to creators or authors (in this case Jaran Mellerud and Anders Helseth Wilmoth) who affixes a date of creation (in this case September 5, 2022) and publishes the document through a news outlet (in this case the K33 Research website).

34. Based on finding a digital copy of Exhibit 2020 on the Internet, it is my opinion that the news article titled “Bitcoin Mining Using Stranded Natural Gas is the Most Cost-Effective Way to Reduce Emissions” was available to the public on September 5, 2022, as indicated on the first page of the document. It is also my opinion that there is no reason to doubt the authenticity of Exhibit 2020 given its appearance, contents, and the web address from which it was obtained.

X. SUMMARY OF OPINIONS

35. In view of the foregoing, it is my opinion that the publications described above were publicly available no later than the corresponding date listed in the table below:

Exhibit	Publication	Publicly Available No Later Than
2014	Barbour, Steve. <i>180kw Off-Grid Bitcoin Mine Walkthrough with Steve Barbour</i> . Lloydminster, Saskatchewan, Canada: Upstream Data, 2023.	July 13, 2022
2016	Sigalos, MacKenzie. “These 23-year-old Texans Made \$4 Million Last Year Mining Bitcoin Off Gare Gas from Oil Drilling.” <i>Crypto Decoded</i> .	February 12, 2022

Exhibit	Publication	Publicly Available No Later Than
	New York: CNBC, 2022.	
2017	Yang, Stephanie. "Bitcoin in the Wilderness." <i>Wall Street Journal</i> . New York: Wall Street Journal, 2019.	March 29, 2019
2018	Wilmoth, Josiah. "Pipe Dream: Analysts Mull Natural Gas-Powered Bitcoin Mining Operation." Atlanta, GA: CNN, 2018.	April 16, 2018
2019	Cavness, Cully. <i>Turning Fireballs into Bits and Bitcoins</i> . Tedx Talk Boston. New York: Ted Conferences, LLC, 2022.	November 14, 2022
2020	Mellerud, Jaran, and Anders Helseth. <i>Bitcoin Mining Using Stranded Natural Gas is the Most Cost-Effective Way to Reduce Emissions</i> . Oslo, Norway: K33 Research, 2022.	September 5, 2022

36. In signing this Declaration, I recognize that the Declaration will be filed as evidence in a case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I also recognize that I may be subject to cross-examination in the case and that cross-examination will take place within the United States. If cross-examination is required of me, I will appear for cross-examination within the United States during the time allotted for cross-examination.

37. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1034 of Title 18 of the United States

Code.

DATED: April 15, 2024

By:


Sylvia D. Hall-Ellis, Ph.D.

ATTACHMENT 1A

Show chat replay



Gas flaring: Can we rein in the...
Financial Times ✓
36K views • 2 year...



Builders + Innovators...
Goldman Sachs ✓
20K views • 2 year...



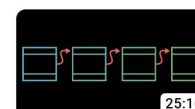
How Irish farmers are...
Cointelegraph
25K views • 1 year...



Easiest Most Efficient Solar...
Brad Cagle
49K views • 1 year...



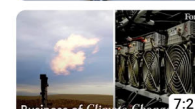
30 INVENTIONS OF THE FUTUR...
Innovative Techs
9.6K views • 7...
New



But how does bitcoin actually...
3Blue1Brown ✓
15M views • 6...



Solar Powered Crypto Mining:...
DIY Solar Pow... ✓
165K views • 2...



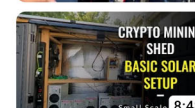
Mining Bitcoin With Natural Ga...
Forbes Digital Ass...
19K views • 2 year...



The BIGGEST DIY Bitcoin &...
VoskCoin ✓
970K views • 3...



Shop Tour of a 90 kW Hash...
Upstream Data Inc.
3K views • 8...



Crypto Mining Shed - Basic...
Mad Electron Engi...
5.2K views • 6...

How many batteries does i...
Engineer775
11K views • 8 day...

Hydro cooling mining containe...
Meta-Luban
6.4K views • 1 yea...

Bitcoin Mining Farm Tour at a...
SPACE DESIGN WA...
11K views • 1 year...

UPDATE Solar Crypto Mining ...
Brad Cagle

180kw Off-Grid Bitcoin Mine Walkthrough with Steve Barbour

Upstream Data Inc.
933 subscribers

Subscribe

👍 240



➦ Share

⌵ Save



8,394 views Premiered Jul 13, 2022

CEO and Founder of Upstream Data Inc., Steve Barbour, walks you through a Canadian well site that is mitigating methane venting via Bitcoin Mining.

See more at our website, www.blog.upstreamdata.ca or reach out to us directly at sales@upstreamdata.ca

Transcript

Follow along using the transcript.

Show transcript

Upstream Data Inc.
933 subscribers

📺 Videos

📖 About

Show less

28 Comments Sort by



Add a comment...



@awidesigns 1 year ago

Great use of the extra gas...love seeing the bullet proof S9's still running, especially since efficiency is a non issue at this location. Thanks for sharing!

👍 2



Reply



@EbadHanafi 1 year ago

Great concept, great way to monetize stranded assets. All of the power is essentially being converted to heat by the bitcoin mine, have you considered using the waste heat for something? Similar to cogeneration, would boost overall efficiency even higher.

👍 8



Reply

👇 • 1 reply



@tryitout_yt 1 day ago

What PDUs are those?

👍



Reply

⋮

Sign in

Dumped Again...

CryptosRUs

14K views • 2 hou...

New

How to Build a
Cryptocurrency...

HashRaptor

226K views • 2...

Bullion Dealer
Mints Insanely...

Yankee Stacki...

23K views • 2 day...

New

Bitcoin Mining at
a Flare Gas Oil...

SPACE DESIGN WA...

7.8K views • 1 yea...

ASIC Solar
Crypto Mining

Brad Bagle

12K views • 1 year...



ATTACHMENT 5A

Nov 13



TEDx Boston Planetary Stewardship

Speaker Schedule v2.6; 10 minute Live talks
Register [HERE](#) (MIT, GBH & NEA)

Hosts

John Werner

Taylor Milsal

Robert Chmielinski

Kelly Stoetzel

MIT Media Lab

75 Amherst Street, Cambridge MA, Start @ 8:30 AM till 6:30 PM

8:30 AM



Kent Larson



Glenn Weinreb



Rebecca Herst



Lindsey Brannon



Heather White

10:30 AM



Donald Pettit



Carl Page



Shelly Zhang



Tu David Phu

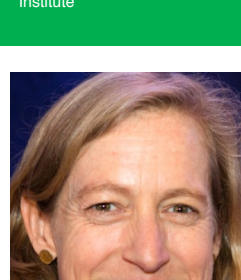


Nora LaTorre

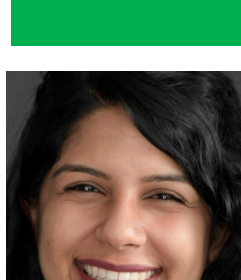
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Frank Ling



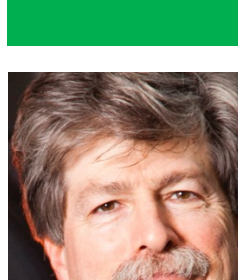
Kelsey Wirth



Soumya Sudhakar

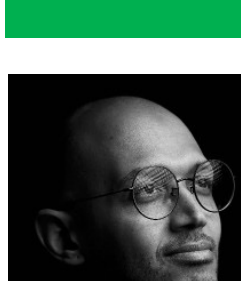


Jon Foley

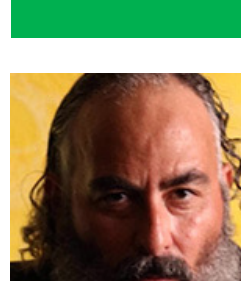


Josh Simpson

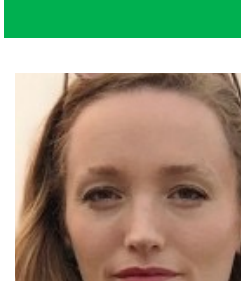
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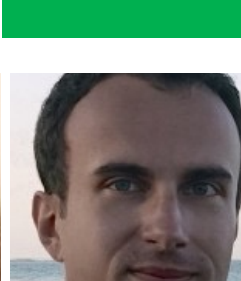
Lejly Gafour



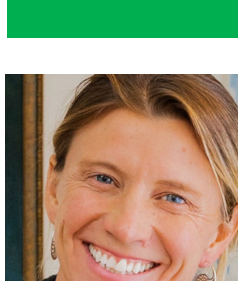
Nikolas Goodrich



Caroline Spears

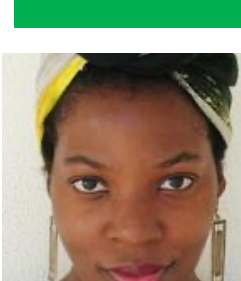


Alexander More

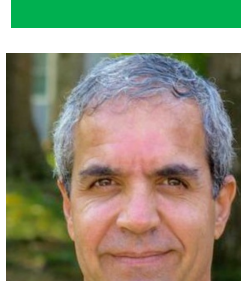


Molly Brown

4:30 PM



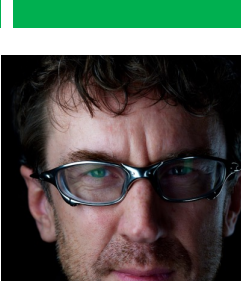
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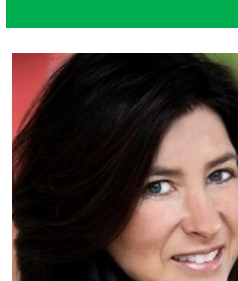
Michael Rawlins



Björn Lütjens



Pablo Holman



Lisa Foster

9:30 AM



Yaniv Altshuler



Neil Hunt



Natalie Jaremlenko



Raffaele Ferrari



Desree Piata

11:30 AM



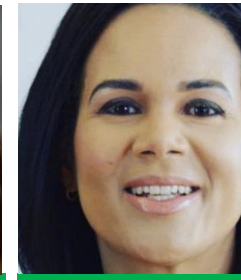
Chris MacAskill



Dava Newman



Christine Harada



Erica Minnihan



Erin Baker

1:30 PM



Jasmina Aganovic



Daniel Kleinman



Debina Sarkar

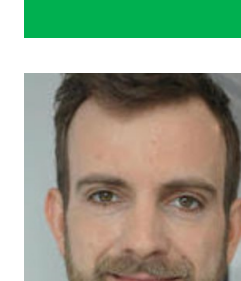


John Hansman

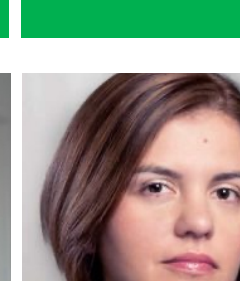


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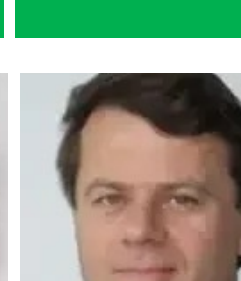
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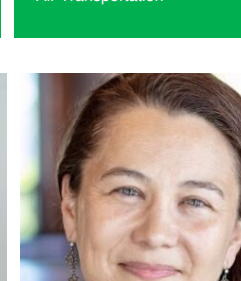
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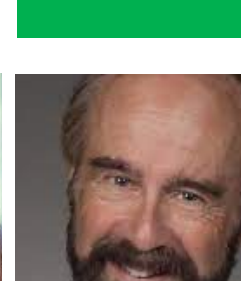
Yuly Fuentes



Greg Kats

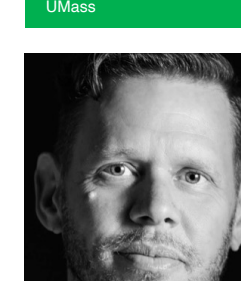


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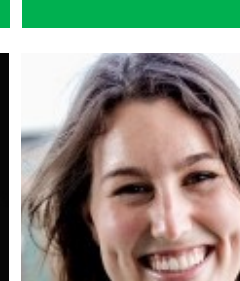


Ben Schwepler

5:30 PM



Jonathan DeLong



Hilary Vogelbaum

GBH @ Boston Public Library

700 Boylston Street, Boston, Start @ 1 PM

1:00 PM



Russ Wilcox



Steven Donziger



Ryan Killackey



Tyler Winkler



Ranjana Bhandari



Toozhan Kassenova



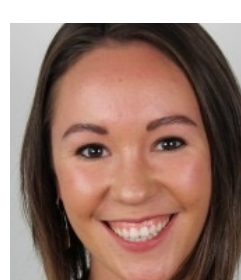
Ken Pucker



Jason Petralia



Phil Gregory



Meghan Olson



Tasha McCord

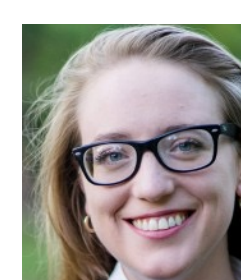
The 'Quin House

217 Commonwealth Avenue, Boston, Start @ 4 PM

4:00 PM



Neil Hunt



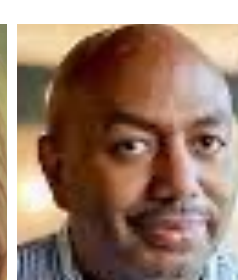
Molly Burnham



Laura Turner



Heather White



Carmichael Roberts



Stephen Wilkes



Heidi Blaik



Carl Page

5:30 PM



Desree Piata



Jeffrey Hoffman



Matt Houde



Chris MacAskill



Paul Shapiro



Juan Enriquez



Peter de Menocal



Alison Sander



Maya Dutta

Nov 14



John Werner

Robert Chmielinski

Kelly Stoetzel

New England Aquarium

1 Central Wharf, Boston, Start at 8:30 AM till 2:30 PM

8:30 AM



Alexis Krauss



Konalian Yu



Greg Watson



Sora Kim

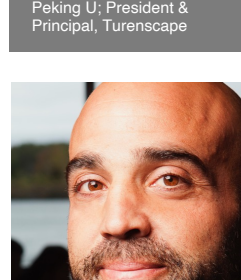


Stephen Wilkes

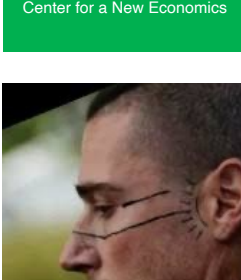
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Craig Ratajczyk



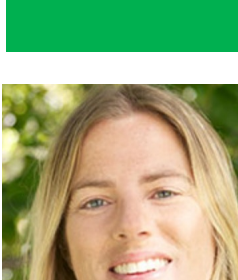
Perry Raso



Sachem HawkStorm

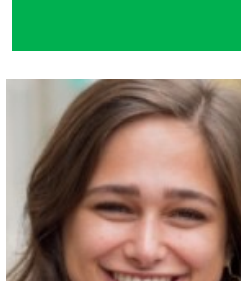


Leah Penniman



Ginger Cassady

12:30 PM



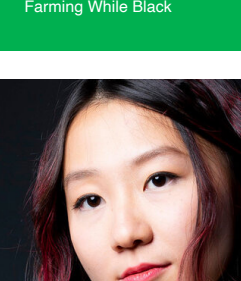
Giana Amador



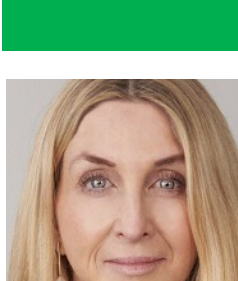
Peter de Menocal



Francesco Maria Benedetti



Jjabao Li



Ann Rosenberg

9:30 AM



Justin Brice



Cathleen Stone



Landolf Rhode-Barbigos

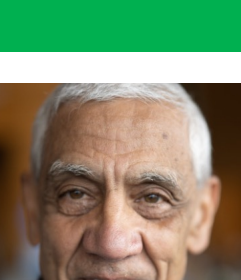


Jon Foley

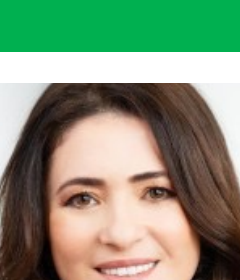


Cady Coleman

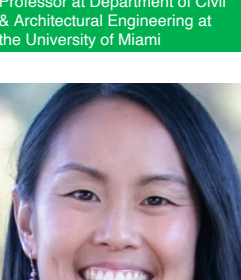
11:30 AM



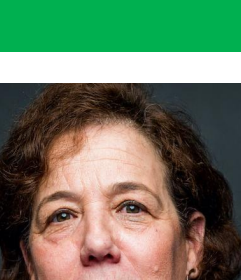
Vinod Khosla



Neri Karra Sillaman



Valerie Shen



Mindy Lubber

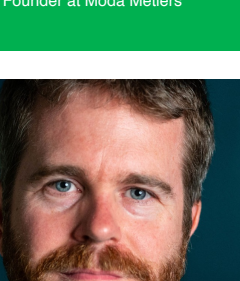


Brad Palmer

1:30 PM



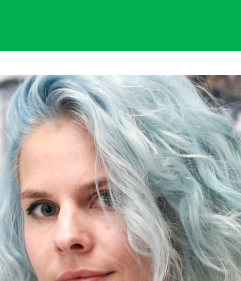
Jan-Georg Rosenboom



David Des Marais



Cully Cavness



Jemima MacEwan

Codman Academy

637 Washington Street, Dorchester

3 PM - Kindergarten – 3rd Grade; 4 PM High Schoolers

3:00 PM



Melany Kahn



Laurel Jackson



Tania Roa



Yaniv Altshuler



Molly Brown

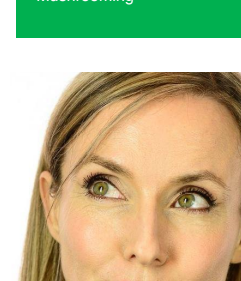


Craig Ratajczyk

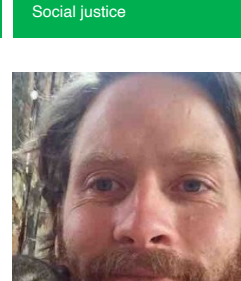


Chris MacAskill

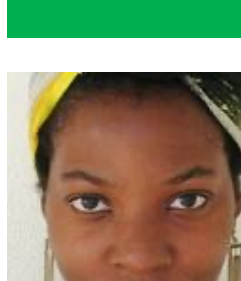
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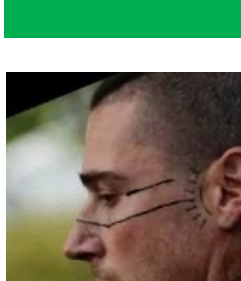
Natalie Jaremlenko



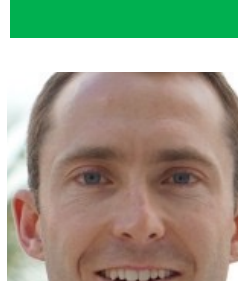
Ryan Killackey



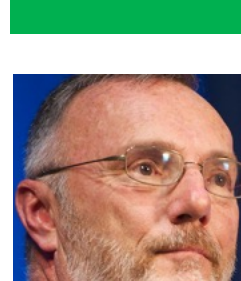
Erika Walker



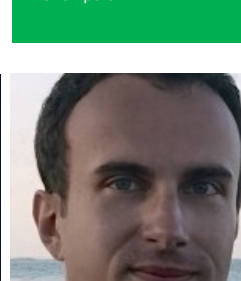
Sachem HawkStorm



Cully Cavness



Phil Gregory

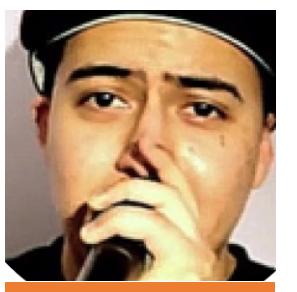


Alexander More

Musicians



Luna & Ursus



Jonatan Lopez



Kristo Kondakci



Adam Levin



Kimberly Khare



Alan Toda



Ambars



Adrian Anantawan



Hayley Reardon