

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD., and
SAMSUNG ELECTRONICS, AMERICA, INC.,
Petitioners,

v.

CERENCE OPERATING COMPANY,
Patent Owner.

Case No. IPR2024-01267
U.S. Patent No. 9,026,428

PATENT OWNER'S SUR-REPLY

TABLE OF CONTENTS

I.	INTRODUCTION.....	1
II.	PETITIONERS’ ARGUMENTS REGARDING PATENT OWNER’S EXPERT LACK MERIT	1
III.	PETITIONERS FAIL TO MEET THEIR BURDEN OF ESTABLISHING THAT <i>ARAI</i> IN COMBINATION WITH <i>FENWICK</i> RENDERS CLAIMS 1-3 7-9, AND 12-13 OBVIOUS	4
A.	<i>Arai</i> And <i>Fenwick</i> Are Fundamentally Different Language Processing Algorithms Than The ’428 Patent’s Process.....	4
B.	Petitioners Continue To Rely On The <i>Same</i> Disclosure For Limitations 1[b] and 1[d], Despite These Limitations Requiring Separate And Distinct Processing Steps	8
C.	Petitioners Fail To Identify Any Portion Of <i>Arai</i> Which Discloses “Presenting” And “Editing” Of A First Candidate Sequence	12
D.	Petitioners Fail To Meet Their Burden Of Establishing That <i>Arai</i> Discloses Or Suggests Limitation 1[f].....	14
E.	Petitioners Fail To Meet Their Burden Of Establishing That <i>Arai</i> + <i>Fenwick</i> Discloses Or Suggests Limitation 1[g]	17
F.	Petitioners Fail To Meet Their Burden Of Establishing That <i>Arai</i> + <i>Fenwick</i> Discloses Or Suggests Limitation 1[h]	26
IV.	PETITIONERS FAIL TO MEET THEIR BURDEN OF ESTABLISHING THAT <i>ARAI</i> IN COMBINATION WITH <i>FENWICK</i> AND <i>BAKER</i> RENDERS CLAIMS 9, AND 12-13 OBVIOUS	26
V.	CONCLUSION	27

TABLE OF AUTHORITIES

Cases

<i>Acceleration Bay, LLC v. Activision Blizzard Inc.</i> , 908 F.3d 765 (Fed. Cir. 2018)	12, 22
<i>ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc.</i> , 694 F.3d 1312 (Fed. Cir. 2012)	23
<i>Echelon Fitness Multimedia, LLC v. Peloton Interactive, Inc.</i> , No. IPR2020-01186, 2022 WL 320411 (P.T.A.B. Jan. 25, 2022)	4
<i>In re Magnum Oil Tools Int'l, Ltd.</i> , 829 F.3d 1364 (Fed. Cir. 2016)	23
<i>In re Stepan Co.</i> , 868 F.3d 1342 (Fed. Cir. 2017)	23
<i>InTouch Techs., Inc. v. VGO Commc'ns, Inc.</i> , 751 F.3d 1327 (Fed. Cir. 2014)	23
<i>MCM Portfolio LLC v. Hewlett-Packard Co.</i> , 812 F.3d 1284 (Fed. Cir. 2015)	23, 24
<i>SEB S.A. v. Montgomery Ward & Co.</i> , 594 F.3d 1360 (Fed. Cir. 2010)	4
<i>TQ Delta, LLC v. CISCO Sys., Inc.</i> , 942 F.3d 1352 (Fed. Cir. 2019)	21, 23, 27

Other Authorities

37 C.F.R. § 42.23(b)	12
----------------------------	----

PATENT OWNER’S EXHIBIT LIST

Exhibit No.	Description
2001	Federal Court Management Statistics, Eastern District of Texas, 2019-2024
2002	Excerpt of Defendant’s Amended Invalidity Contentions, (<i>Cerence Operating Company v. Samsung Electronics Co., Ltd.</i> , Case No. 2:23-cv-00482-JRG-RSP (E.D. Tex.))
2003	Weiss PHV
2004	Wang PHV
2005	Tsuei PHV
2006	Hyde PHV
2007	Declaration of Eric Koskinen in support of Patent Owner’s Response (“Ex.2007 (Koskinen Decl.)”)
2008	Curriculum Vitae of Eric Koskinen
2009	Declaration of Jonas Andersson in support of Patent Owner’s Response (“Ex. 2005 (Andersson Decl.)”)
2010	April 18, 2025 Deposition Transcript of Jean Ward (“Ex.2010 (Ward Dep. Tr.)”)
2011	Lacerda, E.B., de Souza, T. V., Zanchettin. C., Rabelo, J. C., & Coutinho, L.D. (2017). <i>Handwriting Recognition: Overview, Challenges and Future rends</i> . In Bezerra, B.L., Zanchettin, C., Toselli, A.H., & Pirlo, G. (Eds.), <i>Handwriting: Recognition, Development and Analysis</i> (pp.3-32). Nova Science Publisher.
2012	Keysers, D., Deselaers, T., Rowley, H., Wang, L., & Carbone, V. (2017, June). <i>Multi-Language Online Handwriting Recognition</i> . <i>IEEE Transactions on Pattern Analysis and Machine Intelligence</i> , 39(6), 1180- 1194.

I. INTRODUCTION

Petitioners' Reply does not cure the fundamental flaws in their Petition or carry their burden to prove unpatentability. Instead, it mischaracterizes Patent Owner's arguments, advances new theories, and relies on boilerplate assertions rather than reasoned analysis.

The record establishes that Petitioners' primary reference, *Arai*, lacks the auto-commit and buffer functionality central to the '428 patent, and that a POSITA would not be motivated to combine *Arai* with *Fenwick* (Petitioners' secondary reference), because the two algorithms are incompatible. In their Reply, Petitioners offer no credible rationale for combining such incompatible systems and instead merely rely upon their expert's conclusory assertions that a POSITA would be motivated to combine these references with a reasonable expectation of success. But such conclusory assertions are insufficient to establish obviousness.

II. PETITIONERS' ARGUMENTS REGARDING PATENT OWNER'S EXPERT LACK MERIT

First, Petitioners assert that the Board should disregard the *entirety* of Dr. Koskinen's testimony, purportedly because "he does not qualify as a POSITA." Reply at 2. But Petitioners arguments are both factually and legally erroneous.

As an initial matter, Dr. Koskinen clearly meets (and exceeds) the POSITA definition proposed by Petitioners (and adopted by Dr. Koskinen). For example, Petitioners proposed a POSITA at the time of the '428 patent's priority date "would have had at least a Bachelor's of Science Degree (or equivalent) in electrical engineering, computer science, or computer engineering, or a related technical field and two years of experience working with handwriting recognition, user interfaces incorporating on-line recognition technologies, or related technical fields." Petition at 10-11. Petitioners further asserted that "[a] greater amount of professional education could compensate for fewer years of work experience, and vice versa." *Id.*

Here, Petitioners do not dispute that Dr. Koskinen has a PhD in Computer Science, far exceeding the education level proposed by Petitioners. *See, e.g.*, Ex. 2008 (Koskinen CV). Instead, Petitioners merely quibble that Dr. Koskinen's work experience focused on source code and data parsing, rather than "handwriting recognition or user interfaces incorporating on-line recognition technologies." Reply at 2. But Petitioners' own proposed POSITA definition clearly states that the "two years of experience" could be in those fields "*or related fields.*" Petition at 10-11.

Petitioners' sole argument as to why source code and data parsing do not qualify as "related fields" is a single sentence of attorney argument

asserting that “parsing source code involves recognizing typewritten ‘words,’ not handwritten letters/words.” Reply at 2. But, as Dr. Koskinen testified during his deposition, “the patents in this case don’t go into the details of the [handwriting recognition algorithm]” as the patents “mostly use those [handwriting recognition algorithms] as sort of a conventionally available black box.” Ex. 1022 (Koskinen Dep. Tr.) at 32:5-9. Dr. Koskinen also repeatedly explained how his experience in source code and data parsing were qualified “related” fields, testifying that “[p]arsing is a related field to [handwriting] recognition” as it pertains to algorithms for “recognizing sequences of characters and analyzing them.” *Id.* at 31:25-32:4; *see also id.* at 11:17-23; 12:5-13; 12:20-24; 13:18-22; 49:25-50:6; 50:7-15.

Moreover, as discussed above, Petitioners’ *own* proposed POSITA definition clearly states that “[a] greater amount of professional education could compensate for fewer years of work experience, and vice versa.” Petition at 10-11. Thus, even if Dr. Koskinen’s work experience in the fields of source code and data parsing didn’t qualify as a “related field”, Dr. Koskinen’s PhD in Computer Science easily “compensate[s] for fewer years of work experience.”

Petitioners’ arguments are also legally erroneous, as “there is no requirement of a perfect match between a declarant’s experience and the

relevant field.” *Echelon Fitness Multimedia, LLC v. Peloton Interactive, Inc.*, No. IPR2020-01186, 2022 WL 320411, at *6 (P.T.A.B. Jan. 25, 2022) (citing *SEB S.A. v. Montgomery Ward & Co.*, 594 F.3d 1360, 1373 (Fed. Cir. 2010)). As the Board explained in *Echelon Fitness*, “[w]e generally permit testimony where a declarant's scientific, technical, or other specialized knowledge will help the Board understand the evidence or to determine a fact in issue.” *Id.* As the Board further explained, “when assigning weight to a declarant's testimony, we consider the underlying facts or data upon which the testimony is based.” *Id.*

Here, Dr. Koskinen possesses a PhD in Computer Science, has worked in related fields for decades, and his declaration was supported by a plethora of facts and data. Thus, Petitioners’ arguments lack merit.

III. PETITIONERS FAIL TO MEET THEIR BURDEN OF ESTABLISHING THAT *ARAI* IN COMBINATION WITH FENWICK RENDERS CLAIMS 1-3 7-9, AND 12-13 OBVIOUS

A. *Arai* And *Fenwick* Are Fundamentally Different Language Processing Algorithms Than The ’428 Patent’s Process

Petitioners argue that *Arai* and *Fenwick* are analogous to the ’428 patent purportedly because “they are in the same field of endeavor as, and reasonably pertinent to, the problems addressed by the ’428 patent.” Reply at 3. Not so. As discussed in the POR, the ’428 patent uses “linguistic tools with an intermediary buffer,” which “allows the system to use a ‘history’ of characters

input by a user to increase the speed and accuracy of handwritten characters input to the system,” and to further “automatically decide when to clear this intermediate buffer by analyzing the context of two or more characters or words.” ’428 patent, 2:59-62.

The ’428 patent also explains that the recognition process may use “contextual analysis” at each stage of the recognition process. Ex. 2007 (Koskinen Decl.), ¶74; ’428 patent, 3:2-4, 3:36-37, 4:50-58, 6:63-65, 9:42-49, 12:31-34, 13:26-34. Due to the innovative contextual analysis at each stage in the recognition process, the system provides an automatic and quicker recognition system than those disclosed in the prior art. Ex. 2007 (Koskinen Decl.), ¶74. Moreover, the ’428 patent’s use of advanced contextual analysis allows for character recognition across multiple languages. *See, e.g., id.*, ¶¶55-58; *see also* ’428 patent, 14:39-45.

Petitioners’ primary argument as to why *Arai* and *Fenwick* are purportedly analogous to the ’428 patent is merely their assertion that “the claims do not require contextual analysis.” Reply at 4. But even setting aside the ’428 patent’s ability to use contextual analysis as part of its recognition process, Petitioners do not dispute that the ’428 patent allows for automatically committing character sequences to an application (without user input), along with automatically removing character sequences from a

memory buffer. *See, e.g.*, '428 patent, Claim 1, limitations 1[g], 1[h]. Indeed, the '428 patent explicitly discusses this functionality as being an improvement over prior art systems which required user input before committing a character sequence to an application or clearing the corresponding memory buffer. *See, e.g.*, '428 patent, 1:31-41.

Importantly, Petitioners admit that their primary reference *Arai* lacks this core functionality. *See, e.g.*, Petition at 26, 34. Thus, Petitioners' primary reference *Arai* is the exact type of prior art system that the '428 patent was designed to improve. And because *Arai* lacks one of the core features that the '428 patent provides over the prior art, Petitioners' arguments that *Arai* is "analogous" to the '428 patent are plainly wrong.

Moreover, *Fenwick*, Petitioners' secondary reference, is even more distinguishable from the '428 patent process than *Arai*. As discussed in the POR, *Fenwick* is merely directed to a spacing correction algorithm. POR at 13-14. Unlike the '428 patent, *Fenwick* does not provide an algorithm which includes initial character recognition, does not generate a hypothetical character candidate sequence to the user based on the current input, and does not identify any portions of said hypothetical character candidate sequences which may be automatically committed to an application and removed from the memory buffer. *Id.*

Additionally, Petitioners' argument that the claims do not "require" contextual analysis is both legally and factually erroneous. As an initial matter, the plain and ordinary meaning of the claims involves consideration of the claims in view of the specification – and the '428 patent specification discusses the use of contextual analysis at *every* stage of the recognition process. *See* POR at 10 (citing Ex.2007 (Koskinen Decl.), ¶74; '428 patent, 3:2-4, 3:36-37, 4:50-58, 6:63-65, 9:42-49, 12:31-34, 13:26-34.).

Further, as Dr. Koskinen explained, it is not that the claims "require" contextual analysis to be performed, it is that the structure of the claims "*enable*" contextual analysis to be performed (a feature that neither *Arai* nor *Fenwick* includes). *See, e.g.*, Ex. 1022 (Koskinen Dep. Tr.) at 126:6-12; *id.* at 127:4-8. Indeed, Dr. Koskinen testified regarding examples of how the independent claims were structured to allow the use of contextual analysis. *See, e.g., id.* at 129:25-130:7 ("A. Claims 1 and 9 talk about candidate sequences being generated, and it talks about identifying first portions. And those in the context of the specification examples are given that use or [] could use contextual information. So it's clear that the claim 1 and claim 9 allow for the use of contextual information.").

In short, Petitioners' assertion that *Arai* and *Fenwick* are analogous to the '428 patent is contradicted by the plain language of the claims, the clear

disclosure in the '428 patent specification, Dr. Koskinen's declaration and deposition testimony, and Petitioners' own admissions as to what features *Arai* and *Fenwick* lack.

B. Petitioners Continue To Rely On The *Same* Disclosure For Limitations 1[b] and 1[d], Despite These Limitations Requiring Separate And Distinct Processing Steps

Next, Petitioners assert that “*Arai* discloses or suggests the ‘generating a first candidate sequence’ of limitation 1[d]” purportedly because “*Arai* discloses or suggests this limitation by generating 工揚 from two recognized sequences 工 and 揚 (from inputs 工 and 場). Reply at 6 (citing Petition, 21-22). But as explained in the POR, Petitioners improperly rely on the *same* disclosure / processing step in *Arai* for *both* limitations 1[b] and 1[d] (i.e., the initial character recognition process which occurs via calculation of the “evaluation values” for each character). POR at 30-41. This is despite the plain language of the claim (and both sides’ experts) confirming that limitations 1[b] and 1[d] require *separate and distinct* processing steps. *Id.*

Petitioners’ Reply does not address this error at all and instead appears to entirely misapprehend Patent Owner’s argument here. Specifically, Petitioners assert that:

According to PO, the Petition maps 1[b] to *Arai*’s evaluation and recognition of *two* sample characters entered by the user, i.e., the characters 工 and 場. POR, 34. Thus, according to PO, by the

time the Petition discusses 1[d], both individual characters, 工 and 場, have already been evaluated and cannot be used again with respect to 1[d]. *Id.*, 35-36.

Reply at 6 (emphasis in original).

But this is not Patent Owner’s argument. Patent Owner did not assert that Petitioners’ reliance on the calculation of the “evaluation values” (for limitation 1[b]) precluded their later reliance on these same “evaluation values” (for limitation 1[d]) *merely* because the Petition pointed to this process being performed on “two sample characters” for both limitations. Instead, Patent Owner’s argument is that Petitioners cannot rely on calculation of the “evaluation values” (i.e. step S903 in *Arai*) for both limitations 1[b] and 1[d] – *regardless of how many characters pass through this step or how many example characters were shown going through this step in Arai. See* POR at 30-41.

Put simply, limitation 1[d] requires a *separate and distinct* processing step (i.e., generating a hypothetical “first candidate sequence, wherein the first candidate sequence is a best match of one or more recognized sequences”). *Id.* Despite this, Petitioners merely point back to the calculation of the “evaluation values” (i.e., step S903 in *Arai*) – *the same step Petitioners rely on for limitation 1[b]*.

According to the Petition, “[b]ecause Arai generates 工揚 using an ‘evaluation value’ and ‘first-ranked recognition result,’ a POSITA would have understood this first candidate sequence 工揚 to be a best match of the first and second recognized sequences (工 and 揚).” Petition at 21-22. But this is plainly wrong. This is not a separate and distinct processing step from *Arai*’s initial character recognition step, nor is it a calculation of a “best match” of the recognized sequences – indeed, Petitioners identify *no* analysis of the *combination* of the recognized sequences together at this step.

Instead, Petitioners simply point to the fact that the initial character recognition step is performed on two different individual characters in the sample provided in *Arai*. Petition at 21-22. But simply performing the initial character recognition process on two separate characters is not the same as performing the *separate and distinct* processing of the *combination* of the two characters *together*, as required by the claim. See POR at 35-36.

Apparently acknowledging this issue, Petitioners argue that the “generating” step of 1[d] does not actually require any “additional processing step.” See Reply at 7. But Petitioners’ attorney arguments conflict with even its own expert’s testimony, who repeatedly confirmed that the “determining,” “generating,” and “identifying” steps of claim 1 were *separate and distinct processing steps*. See POR at 37-38 (summarizing Mr. Ward’s testimony);

Ex. 2010 (Ward Dep. Tr.) at 106:4-10; 109:22-110:8; 126:10-20; 125:22-126:3.

Faced with the contradictory testimony of their *own* expert, Petitioners attempt to downplay Mr. Ward's testimony, asserting that "Mr. Ward was clear, however, that the portions of testimony to which PO cites were directed to specific embodiment(s) discussed in the specification, not requirements of the claim." Reply at 10. But Petitioners plainly misrepresent Mr. Ward's testimony, as it is clear from the transcript that Mr. Ward was responding to questions about his interpretation of the claims. *See, e.g.*, Ex. 2010 (Ward Dep. Tr.) at 103:22-106:10 ("**Q. *So interpreting these claims in view of the specification that you've read*** you understand generating a first character candidate sequence is doing more than just the initial recognition sequence process...."); *see also id.* at 109:22-110:8; 126:10-20; 125:22-126:3.

Recognizing that their argument lacks merit, Petitioners argue that "to the extent that the Board accepts that 'generating' requires 'additional processing,' *Arai's* disclosure of combining two separate recognized sequences (工 and 揚) into a single candidate sequence (工場) is additional processing." Reply at 8. But as discussed in the POR, the combination of the two separate recognized sequences does not occur until step S904 in *Arai*, when the individual characters entered by the user are sent to the post-

processing unit 34. *See* POR at 33; *Arai* ¶[0146] (“in the post-processing unit 34 the chain probabilities for the character strings ***combining these candidates*** are calculated using a dictionary for post-processing.”) (emphasis added). And Petitioners did ***not*** identify this portion of *Arai* (i.e., combining the candidates via calculation of the chain probabilities) as disclosing limitation 1[d] in their Petition. POR at 34-41; Petition at 21-22.¹

C. Petitioners Fail To Identify Any Portion Of *Arai* Which Discloses “Presenting” And “Editing” Of A First Candidate Sequence

As discussed in the POR, an additional confirmation that Petitioners are mischaracterizing *Arai*’s character recognition process can be found in their arguments regarding limitation 1[e]. POR at 38. For example, limitation 1[e] of the ’428 patent requires “presenting the first candidate sequence to the user, wherein the presenting includes displaying the first candidate sequence to the user and allowing the user to edit the first candidate sequence.” For this

¹ To the extent that Petitioners are now attempting to point to *Arai*’s step S904 (i.e., calculation of the chain probabilities) as satisfying limitation 1[d], this new and untimely argument is waived pursuant to 37 C.F.R. § 42.23(b). *See, e.g., Acceleration Bay, LLC v. Activision Blizzard Inc.*, 908 F.3d 765, 775 (Fed. Cir. 2018) (new obviousness arguments not raised in the Petition are waived).

limitation, Petitioners rely on disclosure from *Arai* that the example characters “工場” are displayed “as the recognition result in the input character buffer area 61.” Petition at 22 (citing *Arai* ¶[0151]). Petitioners then cite to disclosures in *other* parts of *Arai* regarding the ability to edit characters in the input area. *Id.* (citing *Arai* ¶¶[0051], [0088], [0089]).

But as explained in the POR, when describing how its method works “as a time series” (i.e., in linear order), *Arai* makes it clear that editing of the characters in the input area does *not* occur until after the post-processing unit performs its analysis of the full character strings in memory to calculate the chain probabilities. *See Arai* ¶¶[0150]–[0154]. Put simply, the example characters “工場” that Petitioners rely on as being displayed are not editable by the user as required by limitation 1[e], because they are not the candidate character sequence determined by the post-processing unit in *Arai*, they are merely the results of the initial individual character recognition step. Ex. 2007 (Koskinen Decl.), ¶116; *see also* Ex. 2010 (Ward Dep. Tr.), 210:18-21 (testifying that *Arai* only allows editing after the post-processing step).

In their Reply, Petitioners argue that *other* portions of *Arai* evidence that presenting and editing can occur *before* the post-processing step. *See, e.g.,* Reply at 11-12 (citing *Arai* ¶¶[1042]–[1043]). But even if Petitioners’ interpretation of *Arai* were correct, Petitioners’ arguments miss the point:

limitation 1[e] requires “presenting” and “edit[ing] of “*a first candidate sequence.*” And since no “first candidate sequence” has been generated in *Arai* prior to post-processing, it is irrelevant whether *Arai* discloses editing of identified characters *prior* to post-processing.

D. Petitioners Fail To Meet Their Burden Of Establishing That *Arai* Discloses Or Suggests Limitation 1[f]

As discussed in the POR, Petitioners fail to meet their burden of establishing that *Arai* discloses or suggests limitation 1[f], including because: 1) Petitioners continue to misrepresent *Arai*’s processing steps to make *Arai*’s process appear to include more steps than it actually does; and 2) *Arai* does not perform any additional processing steps to identify any “first sequence portion” of the candidate character sequence, let alone identification via a dictionary lookup (as required by limitation 1[f]). POR at 41-43.

In response, Petitioners double down on their argument that “1[d] is met by *Arai*’s disclosure *before* post-processing occurs,” asserting that Petitioners are thus free to rely on *Arai*’s post-processing steps to satisfy limitation 1[f]. Reply at 13 (emphasis added). But, once again, this is plainly wrong, as *Arai*’s initial character recognition steps (which Petitioners rely on for both limitations 1[b] and 1[d]) *cannot* satisfy the requirements of limitation 1[d]. *Supra* at Section III.B; POR at 34-41.

Moreover, even if Petitioners could rely on *Arai*'s post-processing step for limitation 1[f], at **no** point during this post-processing step – *or any time after this step* – does *Arai* perform any additional processing to identify any “first sequence portion” of said candidate character sequence, as required by limitation 1[f]. POR at 41.

In their Reply, Petitioners assert that that claim 1 “does not require a ‘portion,’ but rather just identifying ‘at least a first sequence portion of the first candidate sequence,’ which means any portion/part, including the entire first candidate sequence.” Reply at 13. But Petitioners ignore the plain language of the subsequent claim limitations, which require operation on “**the** first sequence portion.” *See, e.g.*, Limitation 1[g] (“removing **the** first sequence portion from the memory storage buffer”); Limitation 1[h] (“sending **the** first sequence portion to an application running on the mobile device.”). Thus, Petitioners’ arguments that claim 1 does not actually require any identification of a “first sequence portion” is contradicted by the plain language of the claim.

Apparently recognizing this problem in their invalidity theories, Petitioners further argue that *Arai* **does** in fact disclose identifying at least a first sequence portion of the first candidate sequence, purportedly because the example post-processing output of “工場” includes “at least a first sequence

portion of the first candidate sequence (工).” Reply at 13-14. But, once again, *Arai* is only identifying the best match for the **entire** character candidate sequence (i.e., “工場”). *Arai* does **not** disclose identifying any sub-portion of the character candidate sequence (i.e., just “工” or just “場”) which could later be automatically committed to an application or removed from the memory buffer. POR at 41-43.

Indeed, as Dr. Koskinen explained, the ability to process “portions” of the character candidate sequence is one aspect of the ’428 patent claims which enables more robust contextual analysis and processing of the analyzed character strings. *See, e.g.*, Ex. 2007 (Koskinen Decl.), ¶78; Ex. 1022 (Koskinen Dep. Tr.) at 124:25-125:21; 129:22-130:7; ’428 patent, 4:50-58; 9:42-49.²

² While Petitioners’ Reply includes a selective quote from Dr. Koskinen’s deposition that “you have to go through a step of identifying a portion, and that portion could be some set of the characters or the entire thing” (Reply at 13), Dr. Koskinen made it clear that “simply using the entire candidate sequence without having a process of identifying a portion of it” would go against the “key aspect of the claim language” *Id.* at 161:11-18.

E. Petitioners Fail To Meet Their Burden Of Establishing That *Arai* + *Fenwick* Discloses Or Suggests Limitation 1[g]

As discussed in the POR, neither *Arai* nor *Fenwick* disclose identification and/or operation on any “portion” of a candidate character sequence, and thus the combination of these two references necessarily cannot disclose this missing limitation. POR at 44-44. Moreover, a POSITA would not be motivated to combine *Arai* and *Fenwick*, and would not have a reasonable expectation of success in doing so. POR at 45-58.

In their Reply, Petitioners ignore most of Patent Owner’s arguments, focusing instead on arguing that: 1) *Arai*’s and *Fenwick*’s teachings are combinable; 2) a POSITA would be motivated to combine the two references; and 3) a POSITA would be specifically motivated to combine the two references for limitation 1[g]. Reply at 16-22. As discussed below, each of these arguments is without merit.³

³ Petitioners also claim that “PO does not dispute that *Fenwick* discloses this limitation (e.g., POR, 26, 45), but instead argues that a POSITA would not be motivated to combine *Arai* and *Fenwick*....” Reply at 15. This is false. Patent Owner clearly stated that neither *Fenwick*, nor *Arai* disclose this limitation. *See, e.g.*, POR at 44.

First, Petitioners attempt to re-cast *Arai*, *Fenwick*, and the '428 patent to all be inventions directed to “determining where words end and other words begin” in order to argue that the references are combinable *Id.* But Petitioners’ shifting sands approach to how they characterize each reference’s invention undermines their arguments. For example, Petitioners previously characterized the inventions much differently in their Petition:

The '428 patent is directed to a “system and method for receiving character input from a user,” that “includes a programmed processor” that “disambiguates the inputs,” stores a “first recognized character” in memory, “display[s] to the user for editing,” and “removes the first recognized character from” memory after “subsequent input [of] characters.”

Petition at 2.

Arai is directed to techniques for handwriting recognition on a mobile device that uses linguistic tools to efficiently and accurately determine best matches for characters and words corresponding to the user’s handwritten input.

Petition at 5.

Fenwick is directed to similar pattern recognition techniques for determining possible word candidates based on dictionary data and linguistic tools....

Petition at 5.

Petitioners’ Reply arguments also conflict with the actual disclosure in each reference. Indeed, while Petitioners assert that “PO incorrectly characterizes *Fenwick* as merely directed to a ‘spacing correction algorithm’” (Reply at 16), *Fenwick*’s title clearly reads “Pattern Recognition System

Having Inter-Pattern Spacing Correction.” Ex. 1006 (emphasis added).

Indeed, the very first sentence of *Fenwick* reads “[a] ***pattern recognition system having inter-pattern spacing correction is disclosed which recognizes words and determines where to place spaces between those words . . .***” *Id.*, Abstract (emphasis added). And when describing the prior art, *Fenwick* repeatedly distinguishes prior art references which “do not resolve the spacing error problems discussed above.” *See, e.g., id.* at 2:12-15. Thus, *Fenwick* explains in the Summary of the Invention that “[t]he pattern recognition system of the preferred embodiment of the present invention recognizes words ***and determines where to place spaces between those words. . .***” *Id.* at 2:45-48.

Thus, contrary to Petitioners’ eleventh-hour attempt to re-characterize *Fenwick*’s invention, *Fenwick* is indeed directed to a spacing correction algorithm for the English language (and is thus incompatible with *Arai*, a language recognition process for the Japanese language). *See, e.g.,* POR at 45; Ex. 2007 (Koskinen Decl.), ¶135. Indeed, *Fenwick* repeatedly distinguishes Japanese prior art references which offer no ability to identify

spaces between words (*see, e.g.,* Ex. 1006 at 1:49-2:24) (because this functionality is unnecessary for the Japanese language).⁴

Second, Petitioners assert that “[a] POSITA would have found it obvious to combine *Arai*’s and *Fenwick*’s teachings.” Reply at 18. But a POSITA would not be motivated to combine *Arai* and *Fenwick* and would not have a reasonable expectation of success in doing so, because both the initial recognition process, as well as the post-processing that occurs on any recognized characters, differs substantially between different languages. POR at 45-57. Indeed, the fact that a POSITA would not be motivated to combine these references and would not have a reasonable success in doing so was supported by a *plethora* of evidence, including: 1) the expert testimony of Dr. Koskinen; 2) testimony from Mr. Anderson (a co-inventor of the ’428 patent with nearly three decades of experience in the field of handwriting recognition

⁴ Petitioners argue that “[i]t matters not that *Fenwick* distinguishes itself from this Japanese reference” purportedly because “*Fenwick* considered Japanese prior art to be worth discussing.” Reply at 17, n10. But it is entirely pertinent that *Fenwick* sought to solve a problem that exists primarily in the English language, and thus solutions to this problem would not be found in Japanese recognition algorithms.

technology); 3) academic and public papers discussing the difficulties with combining different language models; and 4) *extensive* testimony from Petitioners' own expert regarding the difficulties of combining different language models. *Id.*

In response, Petitioners assert that *all* of the challenges identified in the POR with combining different language models should be disregarded because, according to Petitioners, Patent Owner is merely attempting to “bodily incorporat[e] two references’ embodiments,” which Petitioners contend “is the incorrect test for obviousness.” Reply at 18. But Patent Owner is not arguing that these references must be merged wholesale. Rather, Patent Owner highlights that Petitioners have failed to show how a POSITA could have combined the fundamentally different algorithms disclosed in the references with a reasonable expectation of success. That is the correct inquiry under *KSR* and its progeny. *See, e.g., TQ Delta, LLC v. CISCO Sys., Inc.*, 942 F.3d 1352, 1359 (Fed. Cir. 2019) (“a conclusory assertion with no explanation is inadequate to support a finding that there would have been a motivation to combine” because “[t]his type of finding, without more, tracks the *ex post* reasoning *KSR* warned of and fails to identify any actual reason why a skilled artisan would have combined the elements in the manner claimed.”)

Despite the *vast* differences between the different language recognition algorithms, Petitioners only present *two* conclusory arguments as to why a POSITA would have been motivated to combine *Arai* and *Fenwick* for limitation 1[g]. Petition at 30-34. For example, Petitioners assert that “[a] POSITA would have been motivated to incorporate *Fenwick*’s teachings regarding automatically sending recognized words to an application into *Arai* because this would have furthered *Arai*’s purpose of having a natural, uninterrupted flow in entering characters without having to press extra keys.” Petition at 31-32. But this alleged motivation is entirely irrelevant to limitation 1[g], which deals with automatically *deleting* characters from the memory buffer, not automatically sending them to an application. POR at 57-58.⁵

⁵ Petitioners Reply asserts that “*Fenwick*’s functionality of automatically sending words to an application and deleting that word from memory when doing so are interrelated.” Reply at 21. But Petitioners cannot repair this critical deficiency in their obviousness theories with this new and untimely argument. See *Acceleration Bay, LLC*, 908 F.3d at 775. Regardless, as explained in the POR, these two functions are not “interrelated,” as there are

Beyond the above alleged motivation, Petitioners offer only a conclusory statement that “[t]he combination would have also been obvious as amounting to applying a known technique ... to a known method ... to yield predictable results.” Petition at 32. But this is the exact type of conclusory assertions that the Federal Circuit has repeatedly rejected. *See, e.g., TQ Delta, LLC*, 942 F.3d at 1359; *see also InTouch Techs., Inc. v. VGO Commc'ns, Inc.*, 751 F.3d 1327, 1353-54 (Fed. Cir. 2014) (rejecting an obviousness determination which “fail[s] to provide any meaningful explanation for why one of ordinary skill in the art would be motivated to combine these references at the time of this invention.”); *see also In re Stepan Co.*, 868 F.3d 1342, 1346 (Fed. Cir. 2017); *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016); *ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc.*, 694 F.3d 1312, 1328 (Fed. Cir. 2012).

Petitioners cited case law is also inapposite. For example, Petitioners rely on *MCM Portfolio LLC*, a case where the Federal Circuit rejected a Patent Owner’s argument that two references could not be combined as improper “bodily incorporation” arguments. Petition at 18 (citing *MCM Portfolio LLC*

many reasons that a designer would not want to automatically delete characters from a memory buffer. POR at 58.

v. Hewlett-Packard Co., 812 F.3d 1284, 1294 (Fed. Cir. 2015)). But in that case the Federal Circuit recognized that “[t]he Board found that the ‘evidence supports a determination that one of ordinary skill in the art would have had both the knowledge and the inclination to place the functionality taught by Kobayashi and Kikuchi on a single chip.’” *MCM Portfolio LLC*, 812 F.3d at 1294. The Court also explained that, “[n]otably, MCM conceded at the oral hearing before the Board that it was ‘common practice’ to put multiple functions into a single chip.” *Id.* Conversely, in the present case, Petitioners failed to present evidence that a POSITA would have had the knowledge and inclination to combine the functionality of *Fenwick* and *Arai*, and further failed to provide any evidence that it was “common practice” to combine these different language recognition algorithms. Indeed, the record evidence of this case establishes that combining these different language recognition algorithms is ***extremely*** difficult. *See, e.g.*, POR at 45-58.

Petitioners offer additional critiques to Patent Owner’s arguments here, including that: 1) the specific language processing components discussed by Mr. Anderson and Dr. Koskinen were purportedly not mapped directly to the claim language; 2) Mr. Anderson’s and Dr. Koskinen’s opinions should be disregarded because they are not purportedly qualified POSITAs; and 3) Mr. Ward’s extensive testimony regarding difficulties in combining different

language models is purportedly irrelevant to whether a POSITA would have been motivated to combine *Arai* and *Fenwick*. Reply at 19-20. None of these arguments have merit.

As an initial matter, Petitioners do not dispute that the specific language processing components discussed in Mr. Andersson's declaration (i.e., Single Character Recognition ("SCR") and Multiple Character Recognition ("MCR")), are fundamental levels of architecture in language recognition models. *See, e.g.*, Ex. 2009, ¶¶ 4-15. Moreover, as discussed above, Petitioners' arguments regarding Dr. Koskinen's qualifications are entirely without merit. *Supra* at Section II. Nor can Petitioners seriously argue that Mr. Andersson does not qualify as a POSITA given that he is a co-inventor of the '428 patent with nearly three decades of work experience in the field of handwriting recognition. *See, e.g.*, Ex. 2009, ¶¶ 2-3. Finally, Mr. Ward's testimony regarding the extreme difficulties in combining different language recognition algorithms is entirely relevant to the question of whether Petitioners have met their burden in providing sufficient articulated reasoning as to how a POSITA would be motivated to combine the teachings of two different language recognition algorithms and why said POSITA would have a reasonable expectation of success in doing so.

F. Petitioners Fail To Meet Their Burden Of Establishing That *Arai + Fenwick* Discloses Or Suggests Limitation 1[h]

Petitioners assert that limitation 1[h] is met because “Petitioners demonstrated *Arai-Fenwick* renders obvious 1[g] and provided motivation to combine for both 1[g] and 1[h],” and further because “*Arai-Fenwick* discloses or suggests sending the sequence 工場 to an electronic mail application.” Reply at 22. But as discussed above, Petitioners fail to establish that a POSITA would be motivated to combine these references. Moreover, as discussed above, Petitioners fail to establish any identification of a “first sequence portion,” which necessarily precludes the prior art disclosing any specific actions on that “first sequence portion” (as required by limitations 1[g] and 1[h]).

IV. PETITIONERS FAIL TO MEET THEIR BURDEN OF ESTABLISHING THAT *ARAI* IN COMBINATION WITH *FENWICK* AND *BAKER* RENDERS CLAIMS 9, AND 12-13 OBVIOUS

As discussed in the POR, because Petitioners do not rely on the addition of *Baker* to disclose or suggest any other limitations beyond “a database of acceptable words and/or phrases,” Petitioners have not shown that *Arai* in combination with *Fenwick* and *Baker* renders obvious claims 9 and 12-13 of the '428 patent for the same reasons discussed above with respect to Petitioners' first invalidity ground. POR at 67-70. Additionally, as discussed

in the POR, a POSITA would not be motivated to combine *Baker* with *Arai* and *Fenwick*, and Petitioners' arguments as to why a POSITA would be motivated to combine these references amount to nothing more than conclusory assertions. *Id.*

In response, Petitioners merely rely on the same deficient arguments already discussed above regarding the challenges with combining different language recognition algorithms – and thus Petitioners' arguments for this invalidity ground fail for the same reasons as discussed above. Moreover, as discussed above, Petitioners boiler-plate assertion that the references amount to “applying a known technique ... to a known device ... to yield predictable results” is deficient as a matter of law. *See, e.g., TQ Delta, LLC*, 942 F.3d at 1359;

V. CONCLUSION

Patent Owner respectfully requests that the Board find all challenged patent claims patentable.

Respectfully submitted,

Dated: August 29, 2025

/ Qi (Peter) Tong /

Qi (Peter) Tong (Reg. No. 74,292)
RUSS AUGUST & KABAT
8080 N. Central Expy, Suite 1503
Dallas, TX 75206
(310) 826-7474

Attorney for Patent Owner

CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. §42.24(d), Patent Owner hereby certifies, in accordance with and reliance on the word count provided by the word-processing system used to prepare this **PATENT OWNER’S SUR-REPLY**, that the number of words in this paper is 5595 Pursuant to 37 C.F.R. § 42.24, this word count is in compliance with the word limit set forth in 37 C.F.R. § 42.24(b)(2) excluding the portions exempted under 37 C.F.R. § 42.24(a)(1).

/Qi Tong/
Qi (Peter) Tong (Reg. No. 74,292)

CERTIFICATE OF SERVICE

The undersigned hereby certifies that the above document was served on August 29, 2025, by filing this document through the Patent Trial and Appeal Case Tracking System as well as delivering a copy via electronic mail upon the following attorneys of record for the Petitioner:

Ali R. Sharifahmadian
Patrick Reidy
Douglas L. Clark
Albert J. Boardman
ARNOLD & PORTER KAYE SCHOLER LLP
601 Massachusetts Ave., NW
Washington, DC 20001-3743
Telephone: 202-942-5000
Email: ali.sharifahmadian@arnoldporter.com
Email: patrick.reidy@arnoldporter.com
Email: douglas.clark@arnoldporter.com
Email: albert.boardman@arnoldporter.com
Email: xSamsungCerenceAP@arnoldporter.com

Dated: August 29, 2025

/ Qi (Peter) Tong /

Qi (Peter) Tong (Reg. No. 74,292)
RUSS AUGUST & KABAT
8080 N. Central Expy, Suite 1503
Dallas, TX 75206
(310) 826-7474

Attorney for Patent Owner