

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner

v.

WILDSEED MOBILE, LLC,
Patent Owner

Case IPR2023-00248
U.S. Patent No. 7,376,414

PATENT OWNER'S SUR-REPLY TO REPLY

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I. INTRODUCTION

The Petition fails to establish obviousness of the challenged claims.

Petitioner's art does not teach two limitations required by every independent claim:

(1) "information *taken* by the cellular device from a message," and (2) "recording, by the cellular device, the content which playing was stopped." EX1001, claims 1, 9, 12, 14¹; POR, 20-26, 29-34. The Petition did not address several dependent claim limitations. POR, 57-63. The Petition fails to establish a motivation to combine references, especially because running neural networks on 2001-era cell phones was not possible. POR, 34-46. Tacitly admitting failure, Petitioner contradicts its own expert's sworn testimony and improperly raises new arguments at this late stage. Even ignoring contradicted testimony, undisputed facts prove Petitioner fails to demonstrate that the prior art renders obvious any challenged claim of the '414 patent. The Board should uphold the patentability of the challenged claims.

¹ Emphasis added unless otherwise noted.

II. CLAIM CONSTRUCTION

A. “[I]nformation taken ... from a message” requires information that was actually in a message (limitations 1.1.2, 9.4, 12.3.2, 14.3.2²).

Patent Owner’s expert, Dr. Malek, explained why the ordinary meaning of “taken” is extracting, rather than generating, data from a message. Petitioner questions, but never rebuts, Dr. Malek’s analysis. Petitioner asserts that Dr. Malek’s construction is narrower than the ordinary meaning, but it is consistent with Petitioner’s dictionary. Reply, 3 (citing EX1030).

1. The specification teaches “taken” means taking the same data that was actually in a message.

As Dr. Malek explained, “Dr. Houh’s opinion regarding the meaning of information ‘taken’ from a message is based on his misreading of the ’414 specification.” EX2009, ¶¶63, 64. The specification teaches extracting the exact data—such as GPS coordinates—that exists in sources. EX2009, ¶¶59, 60. Petitioner offers no rebuttal, instead merely commenting on the specification and critiquing Dr. Malek. Reply, 1-6.

Petitioner asserts street addresses cannot be extracted and must be generated using GPS coordinates, so Dr. Malek is wrong. Reply, 4. The specification proves the opposite: “location may be [1] *manually entered by the user* and/or [2]

² For purposes of this Patent Owner Sur-reply, Patent Owner has adopted the claim limitation reference numbers used in the Petition.

provided from a *GPS*.” EX2009, ¶59 (quoting EX1001, 10:48-55). Thus, manually entered addresses can be extracted. EX1028, 31:15-32:2.

Petitioner notes the specification teaches generating new data, not just using existing data—exactly as Dr. Malek stated. Reply, 2-3; EX2009, ¶65. Petitioner notes the specification rarely says “taken,” but the specification informs a POSITA about its meaning without using the exact word. *See Trustees of Columbia Univ. in City of New York v. Symantec Corp.*, 811 F.3d 1359, 1363 (Fed. Cir. 2016) (“The only meaning that matters in claim construction is the meaning in the context of the patent.”). Dr. Malek explained “the specification expressly teaches taking the data from a message by using the actual data that was in a message.” EX2009, ¶¶65, 66. He explained that the specification informs a POSITA that “taken” requires the data in a message:

[T]he patent talks about two ways of obtaining information. One is exact data that is—that is taken ... and one is derived data. ... [T]he claims ... are taking information from the message. You are taking exact data.

EX1028, 68:13-22, 36:13-16 (“[T]he data that is in the message, not some derivation”).

Petitioner asserts incorrectly that Dr. Malek was “unwilling” to specify what information is taken and “avoided the issue,” leaving it “unclear” whether “taken” encompasses extracting some but not all data from messages. Reply, 3-5. Petitioner

never addresses Dr. Malek’s clear testimony on these exact points. Taking some but not all data qualifies: “[I]f that specific address is taken from the message, then that would satisfy the limitation It doesn’t have to be the entirety of the message.” EX1028, 39:8-40:5, 44:11-45:2 (phone number), 49:16-24 (email or game). Dr. Malek answered Petitioner’s remaining questions as well: details regarding what to obtain “[d]epend[] on what you are trying to do in [a particular] system.” EX1028, 51:9-11.

2. The prosecution history teaches “taken” means taking the same data that was actually in a message.

The prosecution history demonstrates “taken” means using the same data that was actually in a message. Petitioner admits the Examiner rejected claims citing a reference (Owensby) that selected ads based on profiles, and never disputes that (1) profiles were built using data generated from messages and (2) the Examiner allowed the same claims after the “taken” limitation was added. EX2009, ¶¶71-76; Reply, 6. It is thus undisputed the Examiner rejected claims that used information *generated* from a message (i.e., a profile), but allowed those claims after they required using information “*taken*” from a message. This confirms the specification’s teachings and Dr. Malek’s testimony that information “taken” from messages requires using data that was actually present in messages, not information generated from messages. EX2009, ¶¶67, 77, 78. Petitioner attempts to discredit the Examiner’s analysis because he cited different passages

than Dr. Malek. Reply, 6. There is no need to explicitly cite the same passages.

The Examiner's reasons for allowance expressly differentiated cited art versus amended claims requiring "information taken ... from a message." *See* EX1002, 35-37, 50. Therefore, the Examiner rejected, then allowed, the claims knowing the art used data generated from messages.

Petitioner notes responses are sent *from* the user's device, but the claims require messages sent *to* the user's device. Reply, 6. The responses are responses to messages sent to the user's device, as claimed. Owensby generates data from messages sent to the user, not just responses. EX2009, ¶72 (quoting EX2007, 17:54-65 ("[T]he targeted *messages previously provided* to the subscriber and the responses")).

Petitioner never disputes the Examiner knew about messages from cellular users, but notes the art's messages are not that message type, and no document proves message type was not important to the Examiner. Reply, 6; EX2009, ¶77. That does raise an issue. If message type is obvious, then the Examiner's obviousness rejection included it. If not, then the Petition fails for lack of proof for limitations 1.1.2 and 1.1.3. *See* Pet., 38-43.

Petitioner correctly notes the file history created no special definition of "taken." Dr. Malek's construction is the ordinary meaning in light of the intrinsic evidence.

3. Dr. Malek’s interpretation of “taken” is consistent with Petitioner’s dictionary.

Intrinsic evidence trumps extrinsic evidence, especially general dictionaries, so Petitioner’s general dictionary should be given little weight. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1317-19, 1321 (Fed. Cir. 2005). Petitioner cites a general dictionary with 95 meanings of “take.” Reply, 3; EX1030. All 95 meanings are ordinary, but only two are relevant. EX1030 (excluding, e.g., #5 “to catch or get []fish ...”). Specifically, the definition “extract or quote” is consistent with the intrinsic record, supporting that “extract” is the proper ordinary meaning of “taken” in the context of the ’414 patent—not narrower, as Petitioner asserts. Reply, 1; EX1030 (#16 “to extract or quote: ‘He took whole passages straight from Dickens.’”). Petitioner cites the other relevant meaning, presumably because it lists “derive” as a synonym. Reply, 3 (citing EX1030 (#15 “to get or obtain from a source; derive: ‘The book takes its title from Dante.’”). But that meaning does not include merely generating data as Petitioner suggests. Reply, 3. The phrase “takes its title,” as used in the dictionary’s example, indicates that “derive” means extract, not generate—in which case, the definition also supports Dr. Malek’s interpretation. A broader interpretation of “derive” would be inconsistent with the intrinsic record. *See* Section II.A.1-2.

III. THE PETITION FAILS TO DEMONSTRATE THE OBVIOUSNESS OF ANY CHALLENGED CLAIM.

A. Independent claims 1, 9, 12, and 14 are not rendered obvious by Petitioner’s asserted combination.

1. The cited art does not disclose taking information from a message that satisfies the claims (limitations 1.1.2-1.1.3, 9.4, 12.3.2-12.3.3, 14.3.2-14.3.3).

a. Kawasaki’s clients do not send information taken from messages.

The term “taken” requires using the same data that was actually in a message. *Supra* Sections II.A.1-2. Petitioner’s original arguments point solely to generating rather than taking data, as Dr. Malek explained and Petitioner never rebuts, and therefore fail. Pet., 38-43, 63, 67-69, 73; EX2009, ¶¶83-89, Reply, 7-15.

1. Kawasaki uses numeric match ratings that are generated from messages, not words that are taken from messages.

Petitioner posits that because “users view words,” words are input and output. Reply, 12. The evidence proves otherwise: recognizers output numbers indicating matches, as Petitioner’s own expert and Kawasaki expressly state. EX1029, ¶11 (quoting EX1005, 4:32-37 (“[T]he *statistical output* from Recognizers 23 indicate *whether* a given set of unknown data ... has a good *match*”)); EX2011, 185:7-15 (“Kawasaki does talk ... about the *output* of *recognizers*.”).

An example of the *output* is ‘a *matching rating* indicating the “strength” or “closeness” ... like a *rating* or *percentage* or some *number* value”).

As the previous quotes prove, the generated output numbers are match ratings, not words in messages. *See also* EX2009, ¶83 (“output ‘90’ to denote that the ‘golf’ recognizer is 90% confident that a message belongs to the ‘golf’ category”). Categories are pre-defined, not taken from messages—which Petitioner never disputes. EX2009, ¶85; Reply, 7-15.

The output alone proves Kawasaki never obtains words from messages.

Further, Kawasaki’s input and processing are also numeric, and Dr. Houh contradicts what he admitted under oath. Like Petitioner, Dr. Houh now asserts that recognizers receive and process words because users view words. EX1029, ¶¶25-26 (“ [U]sers do not request numbers and do not view numbers — users view words in email.”). In contrast, Dr. Houh admitted at deposition that recognizers’ processing is math, meaning that it takes numbers as input and processes numbers to produce output. He made no mention of any text processing in addition to the “math.”

...*recognizers* are really a series of *additions* and *multiplications* typically in a neural network.

EX2011, 150:15-19; *see* Section III.A.4.a.2 (a more complete discussion and rebuttal of Dr. Houh’s attempt to explain away the contradiction).

2. Kawasaki does not disclose clients transmitting the required information to servers (e.g., limitation 1.1.2).

Petitioner never disputes Dr. Malek’s explanation that Kawasaki’s clients do not send “unknown data” to servers. POR, 24-26 (citing EX2009, ¶¶90-95); Reply, 13. Petitioner’s sole remaining argument is that clients send profiles. Those profiles, however, have no information taken from a message. Kawasaki outputs numeric match ratings from messages and analyzes those ratings to build profiles, which are even further removed from information in a message. *See* Section I.A.1.a.1; EX2009, ¶86.

b. Kawasaki does not disclose or analyze the required type of message (limitations 1.1.2, 1.1.3).

The claims require a single message that meets two requirements: (1) it is “from another user of another cellular device” (limitation 1.1.2) and (2) it “identif[ies] characteristics of the user of the cellular device” (limitation 1.1.3). EX2009, ¶¶96-97. Petitioner has never identified anything in Kawasaki that suggests taking information from such a message. *Id.* Petitioner never disputes those facts, and merely asserts it would be obvious to receive mail from another cellular device user. Reply, 11-13. Petitioner’s claim construction argument suggests the opposite is true and claim message type is not obvious—which is fatal to the Petition. *See* Section II.A.2.

2. **The cited art does not disclose selecting an ad based at least in part on the information that a client takes from a message and sends to a server (limitations 1.2, 9.5, 12.4, 14.4).**

Petitioner's Reply relies on sending profiles to servers. Kawasaki's clients do not send "unknown data" to a server, and profiles have no information taken from a message. *See* Section III.A.1.a.2.

3. **The cited art does not disclose playing content on an end user device—let alone a cellular device—while "recording" other content (limitations 1.3.1-1.3.3, 9.6.1-3, 12.5.1-3, 14.6.1-3).**

Kauffman caches upstream of devices that play content—as opposed to caching at devices that play content as the claims require. Petitioner complains about the line between Kauffman's TV and set-top box, and suggests they be treated the same, but Kauffman draws that line. Reply, 16. Kauffman teaches caching at the set-top box "at the extreme"—drawing a line before reaching the TV—and expressly distinguishes "client devices" that cache (e.g., set-top box) versus "end-user devices" (e.g., TV) that display content but do not cache.

EX2009, ¶169 (citing EX1006, ¶9). Petitioner never rebuts these facts. Reply, 15-18.

Petitioner presents two new and incorrect arguments that Kauffman teaches caching at cellular devices that play content. In contrast, the original Petition asserts Kauffman teaches caching at client devices and must be combined with

Frerichs to show the claimed cellular device that caches and plays content. Pet., 30-34, 49-51. The Board should disregard Petitioner’s new theories because they were raised for the first time in Petitioner’s Reply. *See Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1331 (Fed. Cir. 2019) (finding the Board properly “disregard[ed] [Petitioner’s] new theory first raised in reply”); Consolidated Trial Practice Guide (“TPG”), 74 (“[A] reply or sur-reply that raises a new issue or belatedly presents evidence may not be considered.”). But even on the merits, Petitioner’s new theories fail.

First, Petitioner posits cellular devices are “analogous” to a TV and set-top box combination because they all receive and output media. Receiving and outputting media does not prove caching. For example, Frerichs teaches a variety of clients receive and output media, including TVs without set-top boxes, as well as pens—which cannot perform Kauffman’s caching. EX2009, ¶174 (citing EX1004, 1:13-19, 3:46-49). Petitioner never rebuts these facts. Reply, 15-18. Kauffman’s TV does not cache either, as Kauffman expressly teaches. EX2009, ¶¶174-177 (citing EX1006, ¶9).

Second, Petitioner asserts incorrectly that Kauffman teaches caching “at any ‘communication [] device,’” citing claim 17 of Kauffman. Reply, 17. That claim does not say “any.” To the contrary, it depends from claim 12 and thus requires caching “at a local point of presence”—a limitation Petitioner never addresses.

EX1006, claims 12, 17; Reply, 17-18. Even if any “communication device” qualifies, Petitioner never points to one. Petitioner asserts Dr. Malek concedes that computers are communication devices, but he said the opposite. Reply, 17; EX1028, 107:22-23 (“That’s why I wouldn’t want to kind of go as far as saying that it’s a communication device.”). Petitioner asserts cellular devices are computers, but that does not prove the inverse. Reply, 17. For a computer to be a cellular device, it must have “cellular capabilities.” EX1028, 14:4-8. Kauffman’s computer does not: Kauffman never mentions “cellular,” and Petitioner never asserts otherwise.

4. Petitioner fails to establish a motivation to combine the applied references.

Petitioner never alleges any motivation to combine (1) neural networks with phones or (2) all three references. For combining Frerichs and Kauffman, Petitioner merely points to a problem that one reference creates but the other does not have.

a. Kawasaki’s recognizers are neural networks; undisputed: there is no motivation to combine cell phones with neural networks.

Petitioner never proposes any motivation to combine neural networks with Frerichs’ 2001-era cell phone, and never disputes Dr. Malek’s explanations. Reply, 18-19; EX2009, ¶¶124-152. Therefore, it is undisputed that if Kawasaki requires a

neural network, there is no motivation to combine Kawasaki with Frerichs or Kauffman.

The Petition did not describe Kawasaki's "recognizers" in detail, and never mentioned neural networks. EX2009, ¶¶50, 124, 157; Pet., 24-25, 37. Petitioner now admits Kawasaki requires neural networks to output recognizers, but asserts recognizers are not neural networks. Reply, 8. Recognizers are indeed neural networks, as Dr. Malek explained and Dr. Houh admitted repeatedly. EX2009, ¶51; *see* Section III.A.4.a.1. Dr. Houh now contradicts his sworn testimony and asserts recognizers are text. Recognizers cannot be mere text, because text by itself does not perform analysis. EX1029, ¶23 (the text is regular expressions, which can be "used" if something else provides the "computation[]" for "[e]valuating" them).

**1. Dr. Houh contradicts his sworn testimony
admitting recognizers are neural networks.**

Dr. Houh's now asserts "the recognizers in Kawasaki are not neural networks." EX1029, ¶20. Dr. Houh contradicts his sworn testimony repeatedly admitting the opposite:

"[T]he *recognizer* discussed and presented in Kawasaki ... [is] the kind of *neural network* analyzer that Kawasaki is talking about."

EX2011, 40:10-14.

"*neural network recognizers* ..."

EX2011, 177:1-2.

"Q. So these are *neural network* models, right ...? A. Well, that's an

example of *recognizers*”

EX2011, 165:2-4.

“[W]hat’s disclosed in Kawasaki, for example, with respect to the *neural networks*, is *recognizers* are really a series of additions and multiplications typically in a *neural network*.”

EX2011, 150:15-19.

Q. “Does the *recognizer* in Kawasaki scan the emails ...? A. ... I’m not sure ... whether the *recognizer is just a network*, a *neural network* model or [also] includes the scanning”

EX2011, 184:17-185:2.

“Q. ... trying to understand *how the recognizer works*. ... A. I mean, the specific *neural network* example in Kawasaki ... [I]f the *neuron* fires, you may have a positive match And if you have a negative, if it doesn’t fire, then it’s saying it doesn’t *recognize* that.”

EX2011, 177:13-179:10.

“Q. But the *neural network* is not just gonna output the word golf; right? ... A. For the output that’s *trained* on golf ... [t]hat would be the *recognizer output*.”

EX2011, 181:20-182:10. *See also* EX2011, 184:9-14 (asked about recognizer, response directed to neural network), 183:20-184:4 (same); 185:3-8 (equating output of neural networks and recognizers).

Dr. Houh asserts he “did not suggest that all recognizers used arithmetic operations only,” but at his deposition, Dr. Houh repeatedly stated recognizers perform arithmetic, without qualifiers suggesting recognizers operate on words:

“[R]*ecognizers* are really a series of *additions* and *multiplications*

typically in a neural network.”

“Q. ... trying to understand how the *recognizer* works.

A. ... It’s just *simple math* into a series of *arithmetic* operations. And when I say ‘*arithmetic*,’ I mean things like *add*, *multiply*, things like that.”

EX2011, 150:15-19, 177:13-179:14.

Dr. Houh sometimes hedged in the testimony quoted in the preceding paragraphs, testifying that neural networks are an “example” of recognizers or that recognizers are “typically” in neural networks. A neural network is the only example. Petitioner never asserts there are different kinds of recognizers, some neural networks and others not. Reply, 7-11.

2. Kawasaki’s recognizer is the output of training a neural network; training a neural network outputs a trained neural network.

Even ignoring the sworn testimony that Dr. Houh now contradicts, uncontested facts demonstrate that recognizers are neural networks. Kawasaki expressly states, and the parties agree, that recognizers are the output of Kawasaki’s neural network 22. Reply, 8. Petitioner partially quotes—and never disputes—Dr. Malek’s explanation that training neural network 22 outputs trained neural networks called “recognizers”:

[T]he *output* of the *training* of the *neural networks*, which is 22, is algorithms and rules, which are the *recognizers*, which are the—the actual *neural network* ... that recognize a match of incoming, unknown

data

Compare EX1028, 83:22-84:2, *with* Reply, 10 (quoting EX1028, 83:20-84:24).

Recognizers and trained neural networks perform the same function and output the same data because they are one and the same. The undisputed facts in the next paragraph about neural networks demonstrate why.

A neural network—trained or untrained—takes numbers as input, analyzes the numbers using weights and neurons, and outputs numbers, such as numbers indicating matches to categories. EX1028, 82:24-83:1 (“[A] neural network ... sees inputs in the form of numbers, values, and then it produces a number as an output.”); EX2009, ¶¶56, 85, 129; EX2011, 181:8-13. Text is pre-processed to provide numeric input. EX1028, 80:9-17 (“[T]hat feature vector [for input to the neural network] is determined by the features that are extracted from the email. So [neural networks] receive a bunch of numbers”). Training neural networks involve running them repeatedly and adjusting weights after checking answers against answer keys. EX2011, 177:20-178:20 (“many rounds of training”; “train the model based on ... comparing outputs ... to adjust weights”; “compare it against a known set of label data”); EX2009, ¶¶56, 85, 129. The purpose of training neural networks is not to obtain new answers; they are trained using answer keys that already have the correct answers. Instead, as the term “training” suggests, the purpose is to create trained neural networks. EX2011, 177:20-178:20

(“first of all, you have to train the model”); EX2009, ¶85 (“A neural network model needs to be first trained.”). After training, neural networks use weights that were set during training to generate answers that are not already known. EX2011, 177:20-178:20 (“[M]odels are ... weights and nodes along the neural network”), 146:20-147:6 (same); EX2009, ¶129 (“At the operation stage (i.e., during usage of a previously trained neural network model)”).

Thus, untrained neural networks only work with data that is already categorized, using known answers. Neural networks that are trained, however, classify data that is not yet categorized—what Kawasaki calls “unknown data.” Therefore, recognizers and trained neural networks perform the same function: “recognize” categories of unknown data that is not yet categorized. EX1029, ¶11 (“Kawasaki’s Recognizers are ‘algorithms and rules’ which ““recognize” a match of incoming, unknown data”). Further, recognizers and trained neural networks provide the same output: numbers that indicate whether unknown data matches a category. EX1029, ¶11 (“[T]he *statistical output* from Recognizers 23 indicate whether a given set of unknown data ... has a good match” (citing EX1005, 4:32-37)). That is exactly what trained neural networks do. EX2011, 181:8-16 (“Q. ... outputting some number? ... A. Right. ... [I]t could be true with confidence level 95”).

3. Petitioner’s attempts to distinguish recognizers reinforce that recognizers are neural networks.

Petitioner suggests that “once trained,” a neural network outputs a recognizer that is not a neural network. Reply, 9-10. Under Petitioner’s new theory, Kawasaki’s neural network is trained (to produce recognizers), yet the trained neural network is never used because the recognizers are supposedly not neural networks. Reply, 8. Petitioner’s theory makes no sense. The purpose of training neural networks is to create trained neural networks; only trained—not untrained—neural networks analyze data that is not already classified. *See* Section III.A.4.a.2.

Dr. Houh posits that because neural networks are used “to develop” algorithms and weighted rules, the algorithms and weighted rules are not neural networks. EX1029, ¶20. To the contrary, “neural networks” and “algorithms and weighted rules” are two ways to describe the same thing. Neural networks are algorithms that use weights, as both experts agree. EX2011, 177:20-178:20 (neural networks use *weights*); EX2009, ¶134 (“*algorithms* known as Neural Networks”). Untrained neural networks are trained in order “to develop” trained neural networks. *See* Section III.A.4.a.2.

Dr. Houh attempts to distinguish recognizers from neural networks by interpreting Kawasaki’s patent figure, noting untrained neural network 22 is depicted as a server-shaped rectangle but recognizers are number 23. EX1029, ¶21.

Neural networks are not servers, so his interpretation of the rectangle is dubious.

Recognizers 23 are depicted as cylinders—a shape Dr. Houh never attempts to decipher. The shapes do not convey deep meaning or establish that Kawasaki’s neural networks are distinct from recognizers. Instead, Kawasaki distinguishes untrained versus trained neural networks, but never distinguishes neural networks versus recognizers. EX2009, ¶51. Recognizers are neural networks trained to recognize particular categories, as Dr. Houh admitted, which explains why training neural network 22 yields multiple trained neural network recognizers 23, for different categories. EX2011, 182:3-15 (“For the output that’s *trained on golf* ... [t]hat would be the *recognizer output* ...[,] a neuron that fires that’s *trained to detect golf*”), 180:13-21 (“[A] *recognizer* ... *trained on* ... different *categories* [I]t could be *golf and sports*”); EX1005, 4:32-40 (“[I]f a *golfing Recognizer* 23 ...”).

4. Petitioner offers no alternative to neural networks and Dr. Houh’s new theory contradicts his sworn testimony.

Petitioner never identifies anything besides neural networks that could be recognizers. Petitioner asserts that once neural networks are “trained,” the output is “small and compact algorithms and rules”—but never identifies any specific output that could be recognizers. Reply, 10. Petitioner’s citation actually refers to neural networks: “once trained,” a neural network is “small and compact algorithms and

rules.” Reply, 10. The “small and compact” language refers to the undisputed fact that trained neural networks are smaller than untrained ones, as Dr. Malek explained and Petitioner never rebuts. EX2009, ¶161; EX2011, 177:20-178:20.

Dr. Houh identifies text—but neural networks cannot output text, and text by itself cannot perform recognizers’ functions. *See* Section III.A.4.a.2. Kawasaki states that recognizers are neural network 22’s output. Reply, 8-9 (citing EX1005, 4:13-25). “[O]ne form” of such output, according to Dr. Houh, is “regular expressions”—which he admits are “no more than” text, without explaining how text could be output from neural networks. EX1029, ¶¶22-23, 35 (“regular expressions are *no more than* lines of *text*”). Even in the Kawasaki passage Dr. Houh quotes, only the “neural-net assigned weights”—not the regular expressions—are from neural networks. EX1029, ¶22 (citing EX1024, 8:21-30 (“a list of *regular expressions* along with *neural-net assigned weights*:”)).

Dr. Houh’s new theory that recognizers process text contradicts his sworn testimony that recognizers perform math on numbers. *See* Section III.A.4.a.1. Text can be converted to numbers for input to recognizers, as Dr. Houh notes, but recognizers never use regular expressions to analyze numbers converted from text because regular expressions are used only with text strings. EX1029, ¶22 (“A regular expression ... is a pattern used to match character combinations in *strings of text*.”).

Even if text “could be used to implement” recognizers, text cannot perform recognizers’ functions. “*Recognizers process* the scanned content ... and *determine*” categories. EX1029, ¶12 (quoting EX1005, 5:1-4). Regular expressions can be “used” if something else provides the “computation[]” for “[e]valuating” them—but Dr. Houh never identifies what performs the evaluation, and merely asserts “a POSITA would have understood.” EX1029, ¶23. What a POSITA would—and Dr. Malek did—understand is that Kawasaki teaches using regular expressions in conjunction with—not separately from—neural networks. EX2009, ¶54 (citing EX1024, 12:6-9 (“analyzing ... language ... relative to ... *regular expressions*, and using a *neural network* system to form a rating”))).

5. Recognizers cannot run on Frerichs’ cell phone—a POSITA would have needed a server.

Petitioner asserts incorrectly that Patent Owner does not dispute that recognizers could run on cell phones. Reply, 11. To the contrary, Dr. Malek explained why Frerichs’ 2001-era cell phone could not perform a recognizer’s functions, for reasons that apply even under Petitioner’s incorrect theory that recognizers are not neural networks. For example, “a 2001-era mobile device would have not allowed for a system that scanned and parsed all the words of each received email.” EX2009, ¶129. Dr. Houh asserts a recognizer on a phone could evaluate regular expressions for a list of words and weights. EX1029, ¶¶22-23. Dr. Houh provides no explanation or citation, or any suggestion that any prior art

phone had ever performed such a feat, and never addresses Dr. Malek's testimony that generally, regular expressions "are computationally exp[e]nsive to perform." EX1028, 82:3-8; EX1029, ¶23. Regardless of whether a neural network or something else categorizes emails, Frerichs' cell phone could not handle the processing necessary to analyze every word of every email. EX2009, ¶¶130-133.

Even if a POSITA sought to combine Kawasaki with Frerichs, there is no expectation of success for running Kawasaki's recognizer on a feeble mobile phone from the 2001 era. A POSITA would use a server instead. EX2009, ¶¶153-162. Petitioner never responds to Dr. Malek's explanation. EX2009, ¶¶153-162; Reply, 7-11.

b. A POSITA would not have been motivated to combine Frerichs' cell phone with Kauffman's caching.

The sole benefit Petitioner refers to for combining Frerichs' phone with Kauffman's caching is Kauffman avoids network delay by playing from the cache when switching back to a stream. Reply, 19-21. Switching back to a stream, however, is a problem that Kauffman creates and Frerichs does not have. Frerichs never switches back to cached streams. Instead, Frerichs plays whatever single stream it receives, without caching that stream. EX2009, ¶¶116-123. Petitioner never disputes this fact. Reply, 19-24. There is no motivation to combine Frerichs with Kauffman, which would cause and then solve a problem that is irrelevant to

Frerichs. *See Cheese Sys., Inc. v. Tetra Pak Cheese & Powder Sys., Inc.*, 725 F.3d 1341, 1352 (Fed. Cir. 2013) (“Obviousness cannot be based on the hindsight combination of components selectively culled from the prior art to fit the parameters of the patented invention.” (cleaned up)).

Even if she wanted to combine the references, a POSITA would not take on the unnecessary challenge of caching within cell phones. Kauffman does not disclose cell phones. EX2009, ¶111. In any combination, a POSITA would use clients that are more powerful than Frerichs’ cell phone, such as set-top boxes disclosed in both references. EX2009, ¶¶174-181. Even if a POSITA wanted to use cell phones as Kauffman clients, she would cache upstream of cell phones, not in them. EX2009, ¶111. Petitioner never responds to any of these points.

Frerichs’ cell phone was incapable of being Kauffman’s client. EX2009, ¶¶174-181. Petitioner stresses Kauffman’s teachings could apply to audio, which is less demanding than video, and cites a so-called “admission” in the ’414 specification that cell phones could play streaming content—but that adds nothing to the Petition; Frerichs discloses cell phones playing streaming audio. Pet., 23, 28, 31-33; Reply, 22-23. The claims require more: a cellular device caching streaming content while playing other content. EX2009, ¶103. Petitioner admits Frerichs does not teach that. EX2009, ¶¶104 (citing Pet., 32). The ’414 specification does not state that prior-art cell phones could do that. Reply, 22-23. Petitioner never cites

evidence that any prior-art phone cached streaming content while playing other content. EX2009, ¶179 (“[T]here is no evidence in this proceeding that cell phones in 2001 actually performed such caching.”). Petitioner never disputes any of these points. Reply, 19-24. Thus, a POSITA had no reasonable expectation of success putting Kauffman’s caching into Frerichs’ cell phone.

c. Undisputed: Petitioner provides no motivation to combine all three references.

Petitioner relies on the combination of all three references, yet “does not cite any reasons to combine all three references”—as Petitioner never disputes. EX2009, ¶182; Reply, 23-24. Petitioner improperly raises a new argument that “a motivation to combine all three references is not required.” Reply, 23; TPG, 74. That is wrong. Federal Circuit “precedent dictates that the PTAB must make a finding of a motivation to combine when it is disputed.” *In re NuVasive, Inc.*, 842 F.3d 1376, 1382 (Fed. Cir. 2016) (citations omitted). Petitioner asserts incorrectly that Patent Owner makes a bodily incorporation argument. Reply, 23. The point is simpler: combining all three references is harder than combining two. EX2009, ¶¶182-184. Petitioner never disputes that. Reply, 23-24.

B. Dependent Claims

1. Radio station data is not taken from a message (Claims 2, 3, 10, and 13).

The Petition cites only one type of information for claims 2, 3, 10, and 13: broadcast radio station data. Petitioner’s references do not disclose taking such

data from messages, as the claims require. EX2009, ¶¶112-113. Petitioner never disputes that. Reply, 24-26. Tacitly admitting the Petition fails, Petitioner impermissibly raises three new arguments. TPG, 74. Petitioner asserts the specification does not disclose taking demographic or game data from messages. Reply, 24-26. Dr. Malek testified the opposite is true and provided examples. EX1028, 75:16-25 (demographics “... through *messages*”) (citing EX1001, 10:7-11 (example of message required by claim 3)). Petitioner never addresses Dr. Malek’s testimony, and the specification does not eliminate claim limitations. Reply, 24-26. Petitioner asserts preferences would be obvious, citing a Petition section not directed to these claims. Reply, 25 (citing Pet., 42-43). Petitioner also asserts claim 2 covers “additional” data outside of messages. Petitioner omits the crucial word “the” when quoting claim 2. The complete claim phrase “*the* provided information additionally includes” refers to claim 1’s information from a message. Thus, claim 2’s information must be taken from a message. EX1001, 12:45-50.

2. Petitioner never cited Kawasaki for claims 4 and 11 before its Reply.

Petitioner admits that “neither Frerichs nor Kauffman teach” selecting advertisements using messages, as claims 4 and 11 require. Reply, 26. Those are the only references that Petitioner cited. Pet., 55-57, 64. Petitioner cannot introduce a new argument citing Kawasaki. Reply, 26; TPG, 74.

3. Kauffman does not cache at the device that plays content (Claim 7).

“Petitioner admits that Frerichs does not cache as required by” claim 7.

EX2009, ¶117. Petitioner now relies solely on Kauffman’s supposedly “explicit disclosure that the caching inserter may be at the end-user’s communication device.” Reply, 26. There is no such disclosure. To the contrary, Kauffman draws a line distinguishing the “client device” that caches (e.g., set-top box) versus an “end-user device” (e.g., TV) that displays but does not cache. *See* Section III.A.3.

IV. CONCLUSION

For the foregoing reasons, Petitioner fails to demonstrate that the prior art renders obvious any challenged claim of the ’414 patent. Accordingly, the Board should confirm the patentability of all challenged claims.

Respectfully submitted,

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CERTIFICATE OF WORD COUNT (37 C.F.R. § 424.4(d))

1. This Patent Owner Response complies with the type-volume limitation of 5,600 words, comprising 5,462 words, excluding the parts exempted by 37 C.F.R. § 42.24(a)(1).

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CERTIFICATE OF SERVICE

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