

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NICHOLSON MANUFACTURING LTD.,

Petitioner

v.

BID GROUP TECHNOLOGIES LTD.,

Patent Owner

Case No. PGR2025-00081

U.S. Patent No. 12,163,947

**PETITIONER'S REPLY IN SUPPORT OF PETITION
FOR POST GRANT REVIEW**

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Exhibit #	Reference Name
EX-1001	U.S. Patent No. 12,163,947 to Clement et al. (the “’947 patent”)
EX-1002	Declaration of Dr. Michael Pazzani
EX-1003	Prosecution File History of U.S. Patent Application No. 17/445,974 (issued as the ’947 patent)
EX-1004	International Publication No. WO 2013/188948 A1 to Gagnon et al. (“Gagnon”)
EX-1005	Junya Ido et al., <i>CNN-Based Tree Species Identification from Bark Image</i> , 10th Int’l Conf. on Graphics and Image Processing 2018 (“Ido”) (also included as Exhibit A to EX-1013)
EX-1006	U.S. Patent Publication No. 2019/0003829 A1 to Kambla et al. (“Kambla”)
EX-1007	Frank D. Petruzella, <i>Programmable Logic Controllers</i> , chs. 1, 5, 6, 15 (5th ed. 2017) (“Petruzella”)
EX-1008	Nicholson Mfg. Ltd., <i>A8 Manual</i> § 1
EX-1009	Nicholson Mfg. Ltd., <i>A5B Manual</i> § 1
EX-1010	Nicholson Mfg. Ltd., <i>A5B Brochure</i>
EX-1011	Tom Fawcett, <i>An Introduction to ROC Analysis</i> , 27 Pattern Recognition Letters 861 (2006)
EX-1012	Sergey Levine et al., <i>Learning Hand-Eye Coordination for Robotic Grasping with Deep Learning and Large-Scale Data Collection</i> , 37 Int’l J. Robotics Rsch. 421 (2018)
EX-1013	Declaration of Patrick Franzen

Exhibit #	Reference Name
EX-1014	<i>Characterization</i> , Merriam-Webster, https://www.merriam-webster.com/dictionary/characterization (last visited Aug. 25, 2025)
EX-1015	<i>Characterize</i> , Merriam-Webster, https://www.merriam-webster.com/dictionary/characterize (last visited Aug. 25, 2025)
EX-1016	<i>Sensor</i> , Merriam-Webster, https://www.merriam-webster.com/dictionary/sensor (last visited Aug. 25, 2025)
EX-1017	<i>Attribute</i> , Merriam-Webster, https://www.merriam-webster.com/dictionary/attribute (last visited Aug. 25, 2025)
EX-1018	Nicholson Mfg. Ltd., <i>A5A Brochure</i>
EX-1019	Deposition Transcript of Robin Shmulsky, June 23, 2026
EX-1020	Deposition Transcript of Alain Gingras, July 7, 2026
EX-1021	Yangqing Jia et al., <i>Caffe: Convolutional Architecture for Fast Feature Embedding</i> , 22nd ACM Int’l Conf. on Multimedia 675 (2014) (found at https://dl.acm.org/doi/10.1145/2647868.2654889 , redirected from http://dl.acm.org/citation.cfm?id=2654889)
EX-1022	Examples 37-42 from <i>2019 Revised Patent Subject Matter Eligibility Guidance</i> , 84 Fed. Reg. 50 (January 7, 2019) (standalone document with Exs. 37-42 found at https://www.uspto.gov/sites/default/files/documents/101_examples_37to42_20190107.pdf)
EX-1023	Examples 43-46 from <i>October 2019 Patent Eligibility Guidance Update</i> , 84 Fed. Reg. 55942 (October 17, 2019) (standalone document with Exs. 43-46 found at https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_app1.pdf)

Exhibit #	Reference Name
EX-1024	Examples 47-49 from <i>2024 Guidance Update on Patent Subject Matter Eligibility, Including on Artificial Intelligence</i> , 89 Fed. Reg. 58128 (July 17, 2024) (standalone document with Exs. 47-49 found at https://www.uspto.gov/sites/default/files/documents/2024-AI-SMEUpdateExamples47-49.pdf)

I. Introduction

Patent Owner (“PO”) makes cursory, unsupported arguments in its Patent Owner’s Response (“POR”) in an attempt to save its claims from being found invalid. In a mere six pages, PO attempts to rebut Nicholson’s various obviousness combinations, but PO achieves the extreme brevity of this section by raising arguments that it fails to develop or reasonably support, as discussed below. Further, although PO devotes more pages to its *Alice* analysis, for this section it provides only *one* case law citation, and that one is to the *Alice* decision itself. PO fails to raise any further case law or attempt to distinguish the case law cited in the Petition. This section, therefore, amounts to nothing more than attorney argument untethered to any legal analysis. For these reasons, and those discussed below, the ’947 patent claims should be found invalid.

II. PO’s POSITA Definition Fails to Include Any Experience Related to the Use of Deep Learning

PO disparages Nicholson’s proposed POSITA definition for failing to have any forestry experience; however, PO’s definition fails to include any deep learning or AI experience even though both independent claims explicitly recite deep learning. *See* POR 6; EX-1001, claims 1, 11. Notably, the ’947 patent does not rely upon a novel or unique way to program the operation of a debarker, but instead relies upon the use of AI to identify characteristics of logs to be processed. *See* EX-1019, 39:1-15; 42:3-13 (POSITA would have knowledge of a debarker); 47:9-48:23. Moreover, a debarker is not even recited as an element or limitation

for any claim, unlike deep learning, which features prominently in each independent claim. *See* EX-1001, claims 1, 11. Even PO's expert admitted that a POSITA would need to have "an understanding of AI or Deep Learning." *See* EX-1020, 61:17-62:3. PO's arguments are nothing more than an attempt to discredit the testimony of Dr. Pazzani, the only expert here who has significant deep learning experience. This attempt should be rejected.

III. PO Fails to Rebut Nicholson's Showing That the Claims of the '947 Patent Are Rendered Obvious

In the six pages that PO devotes in arguing against obviousness, it fails to address the obviousness combination described in Nicholson's Petition, namely, the combination in which Kambla's wood-species-detecting feature is incorporated into Gagnon's debarker. *See* POR 9-15. PO's position comes down to attorney argument that the "aspirational" statements regarding AI processing in Kambla should be ignored, but PO's argument is fatally defective because PO failed to acknowledge that Kambla references a publicly available deep learning model for implementing its wood-species-detecting features. Without this foundational argument, PO's position opposing obviousness falls apart, leaving Nicholson's arguments unrebutted. Nicholson respectfully submits that it has more than carried its burden in showing that the claims of the '947 patent are obvious.

A. Nicholson's Reliance on Gagnon Does Not Duplicate Prosecution

PO opposes the obviousness grounds described in Nicholson's Petition because they supposedly provide no new information over Gagnon, which was

considered during prosecution. *See* POR 9. The decisions cited by PO, however, were made under section 325(d) when the Board was deciding whether to *institute* a proceeding. *See Dorco Co., Ltd. v. The Gillette Co., LLC*, IPR2017-00500, Paper 7 at 15 (June 21, 2017) (denying institution); *Unified Patents Inc. v. Berman*, IPR2016-01571, Paper 10 at 9 (Dec. 14, 2016) (same); *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 at 17 (Dec. 15, 2017) (denying institution in part); *Praxair Dist., Inc. v. INO Therapeutics LLC*, IPR2016-00781, Paper 10 at 12 (Aug. 25, 2016) (denying institution). Because proceedings have already been instituted here, PO has effectively waived any argument on section 325(d).

To the extent arguments are considered, PO's assertion that the disclosures in Kambla and Petruzella are duplicative of those in Gagnon do not withstand scrutiny. First, Nicholson relies upon Kambla's disclosure of using deep learning to determine tree species of logs coming into the debarker to argue obviousness, *see, e.g.*, Petition 27; as PO notes throughout its response, Gagnon discloses using only a "human operator" to determine species. *See, e.g.*, POR 10. Thus, PO's own description of Gagnon shows that Kambla is not duplicative.

With respect to Petruzella, PO argues that Gagnon already disclosed the use of a programmable logic controller ("PLC"), so that any further description of how a PLC functions provided by Petruzella would be duplicative. POR 11-12. Gagnon, however, does not disclose the functionality or operation of a PLC, which Petruzella does. This distinction is important because the examiner based

allowance of the claims on the “retrieving” element of claim 1 and the table indexing element of claim 11. *See* EX-1003 at 13-14. As Petruzella makes clear, a PLC can perform both operations. *See* Petition 22, 46-47. Because Gagnon does not provide this detail, Petruzella is not duplicative.

B. PO Provides Unsupported and Undeveloped Arguments Related to the Supposed “Aspirational” Statements in Prior Art References

PO makes two arguments related to supposed “aspirational” statements in the prior art. The first such statement involves the description in Gagnon of detecting wood species using a skilled human operator. *See* POR 10. PO does not explain why using a skilled human operator to detect a wood species is aspirational nor why it would require undue experimentation. *In re Antor Media Corp.*, 689 F.3d 1282, 1289 (Fed. Cir. 2012) (rejecting nonenablement argument because forward-looking language was irrelevant to undue-experimentation inquiry). Undercutting this position, PO’s expert testified that the system in Gagnon could allow for human operators to input wood species information as logs are input into the debarker. *See* EX-1019, 65:18-66:15.

PO’s arguments on this point related to Kambla fare no better. PO disparages the statements in Kambla related to using a deep learning model to determine tree species information, characterizing this disclosure as a “vague statement[.]” *See* POR 10. The statement identified by PO, though, cites a 2014 paper that describes a publicly available deep learning framework called Caffee. *See* EX-1006 ¶89 (citing EX-1021). In addition, Kambla provides additional

description with respect to working with and training a neural network classifier like Caffee. *Id.* Nicholson submits that Kambla has more than sufficient disclosure regarding the use of deep learning. Moreover, PO provided no expert opinion to rebut Nicholson's expert on combining Kambla's features within Gagnon's system.

Finally, PO bases its arguments on inapt case law that explains the enablement requirement for prior art in the context of anticipation. By contrast, “[u]nder § 103, . . . a reference need not be enabled; it qualifies as a prior art, regardless, for whatever is disclosed therein.” *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1357 (Fed. Cir. 2003). In considering and rejecting an argument similar to PO's, this Board explained that “a prior art reference must be considered together with the knowledge of one of ordinary skill in the pertinent art.” *See Apple Inc. v. Virnetx Inc.*, IPR2014-00403, Paper 42 at 33-34 (July 29, 2015) (cleaned up). Questioning the enablement of a single prior art reference has little to no relevance in an obviousness analysis, *see id.* at 35, especially when, as here, the prior art discloses a publicly available deep learning model and the '947 patent itself admits that deep learning algorithms were known in the art, *see* EX-1001, 8:20-21 (disclosing that “any type of deep learning algorithm may be used”).

C. PO Fails to Address the Combination Incorporating Kambla's Log-Species AI Feature into Gagnon's Debarking System

Nicholson's obviousness argument incorporates the wood-species identification feature of Kambla into the debarking system of Gagnon. *See* Petition

28-29. PO did not address this combination in its response but instead focused its arguments on a combination involving the diameter-measuring capabilities in Kambla. *See* POR 11. As PO’s own expert explained, though, the additional feature PO identified for the diameter-measuring combination—the use of a reference measurement—does not apply to the log-species combination relied upon by Nicholson. *See* EX-1019, 95:6-10 (testifying that Kambla’s “reference [measurement] is used to calibrate diameter only”). Having failed to address this combination in its response, PO has waived any counterargument. *See* Paper 10, 10 (warning PO that “any arguments not raised in the response may be deemed waived”). Because Nicholson’s arguments stand un rebutted, Nicholson respectfully requests that the claims be found obvious.

Finally, to the extent that PO’s arguments related to diameter measuring are considered relevant, these arguments are misplaced because they assert that Gagnon already discloses a diameter measurement feature such that a POSITA would have no motivation to replace this feature with the one from Kambla. *See* POR 11. Substituting one well-known method for another is an accepted practice for building an obviousness combination, contrary to PO’s position. *See In re Magna Elecs., Inc.*, 611 Fed. App’x 969, 973 (Fed. Cir. 2015) (noting obviousness requires “determining whether a claimed improvement ‘is more than the predictable use of prior art elements according to their established functions’” (citing *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 415-17 (2007))). Notably,

neither PO nor its experts¹ assert that a POSITA would not have a reasonable expectation of success in incorporating Kambla’s diameter-measuring feature into the system of Gagnon and thus fail to rebut Nicholson’s expert on this point. *See* Petition 28, 39. Having failed to apply the correct legal standard, PO’s arguments should be rejected.

D. PO Ignores Disclosures in Gagnon to Argue That the Prior Art Does Not Disclose Predictive Control

PO (and its experts) asserts that the claims in the ’947 patent are not invalid because the cited prior art does not teach predictive controls as the ’947 patent does.² *See* POR 14. Indeed, in making this argument, PO asserts that “[t]he way in which Gagnon and the ’947 Patent determine operating parameters relies upon fundamentally different data,” with “Gagnon rel[ying] upon the collection of data at output related to the error or deficiencies of the debarking process.” *Id.*

This argument ignores Gagnon’s description of capturing *upstream data* related to logs coming into the debarker so that the debarker parameters could be

¹ PO’s expert bases his opinion on this point on a combination of the Kambla reference with marketing materials describing a commercialized product sold by Timbeter. *See* EX-2037 ¶¶ 125-32 (citing EX-2027 and EX-2028). Although PO’s expert states that the Timbeter product “embod[ies]” the technology disclosed in Kambla, he did no analysis on this point nor does the product literature list a patent or patent application number. EX-2037 ¶ 125; EX-1019, 91:3-93:25. Because PO’s expert characterizes Kambla by mixing disclosures from various references without showing a relevant relationship, this analysis should be given little, if any, weight.

² *See also* EX-1019, 51:2-52:3; EX-1020, 73:2-74:11.

modified. *See* EX-1004 ¶49. Indeed, Gagnon discloses a control module that provides “control signals for the required debarker adjustments providing optimal performance *in real time*, on the basis of input data related to intrinsic characteristics of *each log entering* the debarker such as wood species information, mean log diameter, taper shape indicator, and environmentally influenced characteristics.” *Id.* (emphasis added). Both PO’s experts admit that operators have modified debarker parameters based on diameter measurements of incoming logs made by sensor placed upstream of the debarker and that this practice has been in place for decades. *See, e.g.,* EX-1019, 25:24-26:15; *see also* EX-1020, 28:2-9; 44:6-15.

PO’s argument appears to come down to the fact that Gagnon does not disclose taking measurements using a deep learning module, and Kambla does not disclose using the AI log-species detection capabilities to set debarker parameters. *See* POR 14-15. But obviousness cannot be argued by considering each prior art reference in isolation. *See Palo Alto Networks, Inc. v. Centripetal Networks, LLC*, 122 F.4th 1378, 1386 (Fed. Cir. 2024). Doing so effectively nullifies an obviousness analysis; PO’s attempts to do so should be rejected.

E. PO Ignores the Limitations in Claim 4

PO argues that Nicholson has “tacitly admit[ted] that Claim 4 is not obvious” because the prior art identified by Nicholson does not measure “moisture level or intensity of know [*sic*] presence on the log.” POR 15. PO’s position finds no support in the law—when a claim recites a limitation in the form of a

disjunctive list, such as claim 4, the claim element is met when the prior art discloses at least one item on the list. *See Brown v. 3M*, 265 F.3d 1349, 1353 (Fed. Cir. 2001). Because Kambla discloses determining wood species using a deep learning module, one of the items listed in claim 4, any lack of disclosure of the other characterizations in the list cannot save the claim from obviousness. *See id.*

IV. PO's Various Arguments Cannot Save the Claims Under a § 101 Patentability Analysis

PO's efforts to describe the patentable aspects of the alleged invention in the '947 patent confirm Nicholson's patentability arguments. In particular, PO does not contend that it has improved the operation of any specific component in the system; indeed, the specification forecloses that possibility by disclosing that the invention can be implemented by running a generic AI system, that the "data acquisition unit" generally includes a "CPU," and the debarker operates in the normal and expected manner. *See* EX-1001, 5:5-6 (using general CPU); 7:18-23 (debarker parameters can be any known in the art); 8:19-22 (generic deep learning model).

PO's patentability position appears to rest on the argument that the "ordered combination produces a real-time control loop that was not available in prior systems, which relied instead on downstream feedback or manual adjustment." *See* POR 21. But this argument ignores the fact that prior art systems have long used sensors to measure and human operators to identify the *upstream* characteristics of incoming logs, and update the debarker operating parameters

based on the results. *See, e.g.*, EX-1019, 25:24-26:15; 56:1-57:9; *see also* EX-1020, 25:9-25; 27:4-12; 44:6-15. The only alleged “improvement” is that the system can do the measurements faster by automating them with computers and AI, *see, e.g.*, EX-1020, 58:18-25, but courts have held that this type of improvement does not clear the patentability bar. *See GoTV Streaming, LLC v. Netflix, Inc.*, 166 F.4th 1053, 1067-68 (Fed. Cir. 2026) (noting that “merely adding computer functionality to increase the speed or efficiency of a process does not confer patent eligibility on an otherwise abstract idea” (quoting *Intellectual Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1370 (Fed. Cir. 2015)) (cleaned up)). Because PO did not address this controlling case law in its response, it should not be allowed to backfill that deficiency in its sur-reply. *See* Paper 10, 10. PO’s arguments should be rejected, and the claims of the ’947 patent should be found to cover unpatentable subject matter.

A. PO’s Step 1 Arguments Cannot Save the Claims

PO argues that the ’947 patent claims recite patentable subject matter because they are directed “to a closed-loop industrial control method that governs how a physical debarking machine operates.” *See* POR 16, 25.³ PO, though, cannot escape the fact that the claims are directed toward a *computer-implemented* method or system. *See* EX-1001, claims 1, 11. Although PO tries to dress the

³ Although PO separated its *Alice* arguments for claim 1 and claim 11 into two sections, the substance of the arguments substantially overlaps. Accordingly, Nicholson addresses the *Alice* arguments together except where otherwise noted.

claims up using debarking language, these efforts cannot mask that the claims recite collecting, analyzing, and outputting data using generic computer and deep learning components. Even the description by PO and its experts confirms this characterization. *See* POR 28 (noting that “claim 11 recites a system that *acquires real-world data, processes that data* using a computation model, and *uses the results* to control a physical system” (emphasis added)); *see, e.g.*, EX-1019, 36:4-10 (testifying that “the system scans and collects information about the incoming undebarked log and uses a deep learning or AI or artificial intelligence models based on that information to control the machine—the debarker machine”); EX-1020, 39:12-40:5 (describing ’947 patent’s advancement as being able “to take the right decision and send that decision to the machine in a timely manner” on a log that has been “assessed”).

In addition, PO’s description of the claims confirms that they are directed towards methods for controlling a debarking machine that could be implemented using human operators—a human operator could (1) perform a “contactless characterization” of an undebarked log by looking at the log, (2) identify a physical characteristic by identifying the tree species of the log, (3) determine/compute operating parameters of the debarker based upon the operator’s experience of working with debarking machines, and (4) send those parameters to the debarker. *See* POR 16. The fact that the alleged invention is directed toward the use of computers and AI to make the system operate faster or be able to handle more inputs does not confer patentability status where those inputs are handled in the

normal and expected manner (as they are here). *See GoTV*, 166 F.4th at 1067-68. For these reasons, as well as those discussed below, the claims of the '947 patent should be held unpatentable.

1. The Feed Forward Elements and/or the Real-Time Control Capabilities of the Claimed System Do Not Render the Claims Patentable

Under the first step of the *Alice* analysis, one “look[s] at the focus of the claimed advance over the prior art to determine if the claim’s character as a whole is directed to excluded subject matter.” *Affinity Labs of Tex., LLC v. DirecTV, LLC*, 838 F.3d 1253, 1258 (Fed. Cir. 2016) (cleaned up). According to PO, claims 1 and 11 recite patent-eligible subject matter because they provide for “real-time control of industrial equipment based on physical inputs.” *See* POR 16-17 (claim 1), 25 (arguing claim 11 “perform[s] real-time industrial control of a debarking apparatus”). But, the logging industry has long used upstream measurements obtained from incoming logs to adjust the debarking parameters in real time. *See, e.g.*, EX-1019, 25:24-26:15; EX-1020, 28:2-14; 73:9-17. For example, as confirmed by both PO’s experts, it was known in the industry to use light curtains and photo sensors to measure the diameter of incoming logs, to use manual inputs from operators who have visually determined wood species, and to then adjust the debarker settings based on this data. *See, e.g.*, EX-1019, 25:24-26:15; 58:24-59:6; EX-1020, 28:2-14; 73:9-17. Accordingly, PO’s claimed “advance” lacks supporting evidence.

Examining the independent claims of the '947 patent shows that the claims recite the use of generic computers “using their ordinary functions without specific hardware or process advances in those functions—*e.g.*, receiving inputs, storing and retrieving, processing, outputting (including displaying), and transmitting.” *See GoTV*, 166 F.4th at 1064. Removing these ordinary functions from the claim leaves a deep learning model that identifies characteristics of an undebarked log. PO attempts to counter this position by arguing that the claims recite a “specific role” for the deep learning model and that it is incorporated into “a defined industrial context.” POR 27 (claim 11); *see id.* at 17 (claim 1).⁴ Confining the claims to a specific technical context does not save them from reciting abstract material. *See GoTV*, 166 F.4th at 1064; *see also Recentive Analytics, Inc. v. Fox Corp.*, 134 F.4th 1205, 1213 (Fed. Cir. 2025) (noting that “an abstract idea does not become nonabstract by limiting the invention to a particular field of use or technological environment” (quoting *IV*, 792 F.3d at 1366) (cleaned up)).⁵

With respect to the machine learning component, the Federal Circuit has held that using “generic machine learning technology in carrying out the claimed

⁴ Notably, PO does not use the cited reasons for allowance—the retrieval of parameters or the storing of parameters in an indexed table, EX-1003 at 13-14—to describe the advance over the prior art.

⁵ Note that PO makes the unsupported argument that “[t]he Federal Circuit and the USPTO have repeatedly emphasized that claims must not be evaluated at a high level of generality, particularly where machine learning is used in a specific technological application.” POR 17. The *Recentive* court noted that it was deciding a question of first impression involving machine learning and did not provide any such warning. 134 F.4th at 1211.

methods” does not make the claims cover patentable subject matter. *See Recentive*, 134 F.4th at 1212. Here, the specification discloses that “any type of deep learning algorithm may be used.” EX-1001, 8:19-22. Moreover, the claims themselves do not require any change or modification to the deep learning model, confirming that the claimed methods and system use a generic model. *See id.*, claims 1, 11. Accordingly, the deep learning component of the claims cannot make the claims non-abstract because, like the claims in *Recentive*, they “do not delineate steps through which the machine learning technology achieves an improvement.” 134 F.4th at 1212.

PO and its experts make various attempts to salvage the claims, none of which work. PO argues against abstractness by asserting that the claims require “real-time control of industrial equipment” and thus “achieve a technological objective.” *See* POR 16, 26. The claims, however, do not require any particular type or form of control of the debarker; indeed, claim 1 does not even require anything more than sending parameters to the debarker. *See* EX-1001, claims 1, 11. Further both claim 1 and claim 11 recite the “real-time” limitation in the preamble, which PO has not argued is limiting. *See id.* These arguments should be rejected.

PO’s experts fare no better when trying to explain the alleged advancement of the claimed technology. Dr. Shmulsky opined that the “crux” of the invention in the ’947 patent involved the AI component “develop[ing] the solution and then controlling the [debarker] machine.” *See* EX-1019, 49:6-14; 50:13-20. The

claims, however, require the deep learning model determine characteristics of the incoming logs, not operating parameters (*i.e.*, solution) for the debarker. *See* EX-1001, claims 1, 11.

Dr. Shmulsky further testified that the difference between the '947 patent and the prior art was that the '947 patent determined characteristics other than diameter. *See* EX-1019, 53:18-54:13. Mr. Gingras provided similar testimony, noting that the '947 technology was more sophisticated because it could accept additional inputs. *See* EX-1020, 52:18-25; 54:1-55:4. This alleged improvement identified by PO's experts relates to the use of a generic deep learning model; however, these positions run contrary to Federal Circuit precedent that using generic computer and machine learning technology to make processes run faster or more efficiently cannot make an abstract claim non-abstract. *See GoTV*, 166 F.4th at 1067-68. Accordingly, PO's *Alice*, step one, arguments should be rejected.

2. The PTO Eligibility Examples Support Nicholson's Arguments Because the Claims Do Not Require Optimizing the Debarker Operations

PO claims that various PTO eligibility examples support its arguments. Other than providing cursory, single-sentence explanations, PO provides no further explanation or analysis to support this point. *See* POR 18, 27-28. Examining the actual examples and comparing the exemplary claims directed to both patentable

and unpatentable subject matter reveals that the claims of the '947 patent fall much more closely in line with those covering unpatentable subject matter.⁶

Example 43: Example 43 describes a claimed process for diagnosing a particular disease and then “administering a treatment to the patient having” the disease. *See* EX-1023 at 2-3. In its analysis describing claim 1 as being directed to patent ineligible subject matter, the PTO noted that the claim limitation “indicates that a treatment is to be administered,” but “does not provide any information as to how the patient is to be treated, or what the treatment is, but instead covers any possible treatment that a doctor decides to administer.” *Id.* at 4. By contrast, the PTO noted that dependent claim 2 would claim patent eligible subject matter because it designates a specific treatment. *Id.* at 6.

Similar to claim 1 of Example 43, the independent claims here fail to identify any specific type of parameters or setting to send to the debarker. Instead, claim 1 merely recites “computing operating parameters of a debarker based on the identified characteristics; and sending the computed operating parameters to the debarker.” EX-1001, claim 1; *see id.*, claim 11 (reciting similar limitations). Thus, the independent claims do not provide any information about what the debarker

⁶ It is difficult to determine the applicability of Examples 38 and 42 to the current claims. Example 38 describes the simulation of an analog audio mixer and thus does not “involve real-world measurement of physical conditions,” as PO alleges. *Compare* EX-1022 at 6 *with* POR 18, 27. Example 42 describes sending notifications when medical records are updated and does not involve “applying neural networks or image-based machine learning,” also contrary to PO’s assertions. *Compare* EX-1022 at 16 *with* POR 18, 27.

parameters are supposed to be or how they are to be determined, but instead cover any possible settings that an operator may determine. The claim would even cover a situation in which the debarking parameters resulted in worse or non-optimal operation of the debarker.

Example 46: With respect to Example 46, exemplary claims 2 and 3 were found to recite patent eligible subject matter because both provided “other meaningful limitations.” *See* EX-1023 at 30, 37, 40. In particular, they were found to recite “corrective action” that the system took based upon the collected information. *Id.* at 37, 40. For claim 2, the corrective action involved providing a “therapeutically effective amount of supplemental salt and minerals,” whereas claim 3 recited “automatically operating the sorting gate” based on the characteristics of the analyzed animal. *Id.* These two exemplary claims thus differ from the challenged claims in the ’947 patent because the challenged claims do not recite a corrective action for the debarker to take. Instead, the claims in the ’947 patent merely require sending computed operating parameters to the debarker. *See, e.g.,* ’947 patent, claims 1, 11. As noted previously, the parameters could result in worse operation by the debarker and still fall within the claim scope.

Example 47: The analysis based on Example 47 also fails to support PO’s position. Exemplary claim 2 is directed toward unpatentable subject matter because it recites (1) discretizing incoming data, (2) detecting anomalies, (3) analyzing the anomalies using a trained artificial neural network to generate anomaly data, and (4) outputting that data. *See* EX-1024 at 5-8. Because claim 2

fails to recite *how* a solution to the problem is accomplished, it is classified as covering ineligible subject matter. *Id.* at 8-9. Exemplary claim 3 by contrast specifies remedial actions taken to protect the network. *Id.* at 10-12. Accordingly, claim 3 is considered to cover patentable subject matter. *Id.* at 12-13.

Much like the analysis from Examples 43 and 46, the pending claims in the '947 patent align much more closely with exemplary claim 2 found to cover unpatentable subject matter because the '947 claims provide no meaningful limitation on how the generic deep learning module determines characteristics nor does it specify how those characteristics are used to determine the debarker's operating parameters. *See* EX-1001, claim 1, 11. This situation stands in stark contrast to exemplary claim 3, which does recite remedial actions to be taken by the network. *See* EX-1024 at 12-13. Again, this example does not support PO's position.

B. PO's Step 2 Arguments Also Fail to Save the Claims Because PO Fails to Identify an Inventive Concept

PO's primary argument relating to *Alice*, step two, is that Nicholson relies upon "separate prior art references to identify individual elements of the claimed system, but fails to show that the claimed combination and arrangement of those elements was conventional." POR 29; *see also id.* at 20. Under PO's rationale, an argument for obviousness would necessarily undercut an argument for unpatentable subject matter under *Alice*. PO cites no case law or other support for this argument, and Nicholson is not aware of any.

Instead of focusing on the prior art, the existing case law directs that in *Alice*, step two, the appropriate consideration is whether “the remaining elements, either in isolation or combination with the non-patent-ineligible elements, are sufficient to transform the nature of the claim into a patent-eligible application.” *See IV*, 792 F.3d at 1367. Thus, this analysis requires the focus to be on the claims, not the prior art. As Nicholson noted previously, the claim elements recite generic computer and deep learning technology that operate both individually and in combination in the normal and expected way. *See* Petition 4-5, 73-74, 77. Although PO continuously states that the claims recite a specific architecture, *see* POR 21, 25-26, 28-30, at no point does PO identify any portion or combination of the claimed technology that operates in an unexpected manner, much less explain how such unexpected operations occur. At best, PO asserts that the claimed combination allowed for “a real-time control loop that was not available in prior art systems, which relied on downstream feedback or manual adjustment.” *See id.* at 21. Not only does PO cite no support for this assertion, but record evidence contradicts PO’s position by showing that prior art systems did in fact provide such a “real-time control loop” that allowed for prospective controls. *See* EX-1004 ¶49. Lacking any supporting evidence, PO’s cursory arguments related to *Alice*, step two, should be rejected.

Finally, PO alleges that the inclusion of the “debarker controller” in claim 11 transforms that claim into covering patent eligible subject matter. *See* POR 29. However, PO fails to explain how the “debarker controller” is performing any

function that is different than what an ordinary computer would do, *i.e.*, transmitting controls to the debarker. *See GoTV*, 166 F.4th at 1064 (computer’s “ordinary functions” include transmitting data). The breadth of that claim element, which covers any and all “computed operating parameters” without specifying how those operating parameters control the debarker, *see* EX-1001, claim 11, confirms that there is not something “significantly more” in the claims beyond the abstract concept of determining and sending operating parameters to a debarker. *See GoTV*, 166 F.4th at 1067-68 (rejecting step two argument where claim failed to recite how supposedly novel claim element was performed).⁷ Claims 1 and 11 merely require that this abstract idea be implemented using computer and deep learning technology, which does not transform the claims under the step two analysis.

C. PO’s Description of the Dependent Claims Support Nicholson’s Position That These Claims Fail to Add Patentable Subject Matter

PO argues that the dependent claims confer patentability status, but these arguments fail to explain how the dependent claims add anything other than insignificant pre- or post-solution activity, or routine, conventional functionality.

⁷ Note that claim 1 recites a “retrieving” step, and claim 11 recites an indexed table. EX-1001, claims 1, 11. As Nicholson explained previously, these two elements do no more than describe conventional computer functionality and therefore could not be the basis for patentability. *See* Petition 77-78. In any event, PO did not cite these two elements as providing “something more” that transforms the claims into covering patent eligible subject matter and has therefore waived any such argument.

See POR 22-25, 31-33; *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 715-16 (Fed. Cir. 2014) (insignificant pre-solution activities or routine, conventional activity cannot supply “inventive concept”). Instead of applying the relevant legal framework, PO argues the components in the dependent claims further ground the technology in real-world environments, *see, e.g.*, POR 22-24 (claims 2-4, 10), 32-33 (claims 16-18), or provide specific implementation details for identifying the operating parameters or training the deep learning model, *see, e.g., id.* at 23-24 (claims 5-9), 31-32 (claims 12-15). PO cites no case law to support its contention that grounding the claims in a real-world environment using conventional components or providing additional, conventional frameworks to deep learning models somehow provides an inventive concept, and such arguments run contrary to existing case law as explained above. As such, PO’s cursory arguments related to the dependent claims should be rejected.

V. PO’s Expert Confirms That Claims 7 and 8 Can Use Multiple “Predetermined Values” That May Lead to Different Infringement Outcomes

PO attempts to rebut the indefiniteness of claims 7 and 8 by arguing that the “predetermined value” is one in which “the model may be considered ready and used for determined log characteristics in production.” *Id.* at 35. Further, PO attempts to disparage the multiple accuracy metrics identified in the petition as “most commonly used in medical diagnostics.” *See id.* at 34.

Even if PO’s arguments in its Response are correct, *PO’s own expert* undercuts PO’s position by identifying at least two additional metrics for

determining the “predetermined values” limitation. According to Professor Shmulsky, the “predetermined value” could be based on either (1) “industry norms for the amount of bark present” or (2) “a level simply above the average skilled-human operator.” See EX-2037 ¶¶ 174-75. PO’s expert further confirmed that these two metrics could lead to two different “predetermined values,” see EX-1019, 82:11-83:16, which could lead to different infringement conclusions depending upon which metric a POSITA used. Thus, PO’s expert buttresses Nicholson’s position with this testimony. See *Dow Chem. Co. v. Nova Chems. Corp.*, 803 F.3d 620, 634 (Fed. Cir. 2015) (finding claims indefinite where there was no guidance regarding which of “multiple methods leading to different results” should be used). Here, PO’s expert has identified multiple methods to arrive at the “predetermined value” in the prior art, but neither the claims nor the specification provide guidance as to which to use. Accordingly, much like the claims in *Dow Chemical* were found to cover unpatentable subject matter, so too should the claims here.

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VI. Conclusion

Nicholson respectfully requests the Board find the claims unpatentable for the reasons discussed above and in the Petition.

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Respectfully submitted,

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CERTIFICATE OF WORD COUNT COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(c), Petitioner certifies that this Reply includes 5,586 words, as measured by Microsoft Word, excluding the parts exempted by 37 C.F.R. § 42.24(c)(1).

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CERTIFICATE OF SERVICE

The undersigned certifies that on August 5, 2026, a true and correct copy of the foregoing **PETITIONER’S REPLY** was filed through the Patent Trial and Appeal Board P-TACTS System and served upon Patent Owner’s counsel of record by email as follows:

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