

Broader Eligibility For AI-Related Patents May Be Coming

By **Cathy Cretsinger, Neslihan Doran-Civan and David Raczkowski** (October 29)

On Sept. 26, the U.S. Patent and Trademark Office **published** a rare Appeals Review Panel decision in Ex parte Desjardins that reversed a finding of ineligible subject matter in a patent application directed to training of machine learning models.

This decision, authored by new USPTO Director John Squires in the first week of his tenure, appears to signal new USPTO leadership's intent to limit examiners' reliance on subject matter eligibility to reject claims, particularly when read in combination with other recent actions by the USPTO leadership.

The patent application at issue, U.S. Patent Application No. 16/319,040, was directed to training of a machine learning model to perform multiple different tasks. A representative claim read:

1. A computer-implemented method of training a machine learning model,

wherein the machine learning model has at least a plurality of parameters and has been trained on a first machine learning task using first training data to determine first values of the plurality of parameters of the machine learning model, and

wherein the method comprises:

determining, for each of the plurality of parameters, a respective measure of an importance of the parameter to the first machine learning task, comprising:

computing, based on the first values of the plurality of parameters determined by training the machine learning model on the first machine learning task, an approximation of a posterior distribution over possible values of the plurality of parameters,

assigning, using the approximation, a value to each of the plurality of parameters, the value being the respective measure of the importance of the parameter to the first machine learning task and approximating a probability that the first value of the parameter after the training on the first machine learning task is a correct value of the parameter given the first training data used to train the machine learning model on the first machine learning task;

obtaining second training data for training the machine learning model on a second, different machine learning task; and

training the machine learning model on the second machine learning task by training the machine learning model on the second training data to adjust the first values of the plurality of parameters to optimize performance of the machine learning model on the second machine learning task while protecting performance of the machine learning model on the first machine learning task,



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wherein adjusting the first values of the plurality of parameters comprises adjusting the first values of the plurality of parameters to optimize an objective function that depends in part on a penalty term that is based on the determined measures of importance of the plurality of parameters to the first machine learning task.

The patent examiner rejected the claims as being obvious under Title 35 of the U.S. Code, Section 103, but did not reject the claims as being directed to patent-ineligible subject matter under Section 101.

On appeal, the Patent Trial and Appeal Board affirmed the rejection under Section 103 and introduced a new ground of rejection under Section 101. Squires exercised his authority to convene an ARP to reconsider the PTAB decision.

The ARP left intact the Section 103 rejection but vacated the Section 101 rejection introduced by the PTAB. Applying the two-step patent eligibility inquiry as set forth by the U.S. Supreme Court in Alice Corporation v. CLS Bank International in 2014, and in the Manual for Patent Examining Procedure at Section 2106, the ARP agreed with the PTAB that each claim recited a judicial exception, specifically, "at least one abstract idea." [1]

Moving to the next prong of the inquiry, the ARP found that the PTAB had erred. The claims did "integrate the judicial exception into a practical application" as provided by MPEP Section 2106.04(II)(A)(2).

The ARP relied on Enfish LLC v. Microsoft Corp., decided by the U.S. Court of Appeals for the Federal Circuit in 2016, in which "the Federal Circuit held that the eligibility determination should turn on whether 'the claims are directed to an improvement to computer functionality versus being directed to an abstract idea.'" [2]

The claim language reciting "adjust the first values of the plurality of parameters to optimize performance of the machine learning model on the second machine learning task while protecting performance of the machine learning model on the first machine learning task" was found to "constitute[] an improvement to how the machine learning model itself operates, and not, for example, the identified mathematical calculation." [3]

Notably, the ARP decision also included language directing examiners and PTAB panels on how to evaluate patent eligibility under Section 101:

Under a charitable view, the overbroad reasoning of the original panel below is perhaps understandable given the confusing nature of existing § 101 jurisprudence, but troubling, because this case highlights what is at stake. Categorically excluding AI innovations from patent protection in the United States jeopardizes America's leadership in this critical emerging technology. Yet, under the panel's reasoning, many AI innovations are potentially unpatentable-even if they are adequately described and nonobvious-because the panel essentially equated any machine learning with an unpatentable "algorithm" and the remaining additional elements as "generic computer components," without adequate explanation. Dec. 24. Examiners and panels should not evaluate claims at such a high level of generality.

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At the same time, the claims at issue stand rejected under § 103. This case demonstrates

that §§ 102, 103 and 112 are the traditional and appropriate tools to limit patent protection to its proper scope. These statutory provisions should be the focus of examination.[4]

With the publication of this decision, the new USPTO director appears to be signaling a policy shift. In particular, improvements in the operation of machine learning models — and potentially other complex computer algorithms — should be considered as patent-eligible improvements to the functionality of a computer system.

The more general statement that Sections 102, 103 and 112 (novelty, nonobviousness, and sufficiency and clarity of the disclosure and claims) should be the focus of examination may carry over into other technologies.

Further evidence of a policy shift under Squires includes a public signing ceremony and a statement to Congress. During the ceremony, Squires signed newly issued U.S. Patent No. 12,419,202 related to dynamic pricing of computational resources using machine learning, signaling his view that claims having economic and AI components are patentable.

In his Oct. 10 statement to the U.S. Senate Subcommittee on Intellectual Property Committee on the Judiciary, Squires defended expansive eligibility. Beyond AI-related patents, Squires indicated that "advances in applied economics can promote the progress of science and the useful arts," hearkening back to language from the U.S. Constitution.

In regard to the Supreme Court decisions of Mayo and Alice Corp., Squires expressed his view that "[p]roperly read, they do not narrow eligibility beyond the established judicial exceptions."

According to Squires, the ensuing broadening of exclusions in later lower court decisions "[i]s not what the Court intended, and it is certainly not what Congress ever authorized".

Squires highlighted that entire classes of inventions "from financial technologies to artificial intelligence to diagnostics" have been improperly excluded. Squires ended with a call to fidelity to the Constitution with the strong language of "[e]xclusion is not caution; it is abdication" and that such fidelity "sets the global bar for security, prosperity and progress."

Squires' actions follow the Aug. 4 memo to examiners from Deputy Commissioner for Patents Charles Kim. That memo reminded examiners that a claim is not directed to an abstract idea, e.g., a mathematical concept or mental step, simply because it involves an abstract idea and encouraged examiners to make Section 101 rejections only where it is more likely than not that the claim would be ineligible.

Time will tell whether examiners change course on the Section 101 analysis to align with Squires' more inclusive view of new technologies.

On a cautionary note, while this ARP decision along with these other indications of a policy shift may result in the USPTO finding more claims eligible under Section 101, applicants should keep in mind that the USPTO's decisions are not binding on the courts. The Federal Circuit most recently **reiterated** this point in Rideshare Displays Inc. v. Lyft Inc. on Sept. 29.

Takeaways for Evaluating Inventions for Patenting

Claims that recite an improvement in the operation of a machine learning model are now more likely to be considered patent-eligible by the USPTO.

Patent examiners may begin to focus more on questions of novelty and nonobviousness and less on subject matter eligibility. Applicants may receive fewer rejections under Section 101 or find them easier to overcome. This change may extend beyond machine-learning or computer-implemented inventions.

Finally, courts are not bound by USPTO interpretations of statutes. While it may become easier to obtain a patent in some technology areas, enforcement will likely remain a challenge.

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[1] ARP Decision at 6-7.

[2] ARP Decision at 8, citing Enfish, 822 F.3d at 1336.

[3] ARP Decision at 9.

[4] ARP Decision at 9-10.