

Intellectual Property Prosecution, Transactions & Portfolio Management Update

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PTAB Reverses Section 101 Rejection Based on *Ex Parte Desjardins* Decision

On October 30, the Patent Trial and Appeal Board (PTAB) issued a decision in *Ex parte Widdershoven*, Appeal 2026-001654, reversing the examiner's rejection of all claims as ineligible under 35 U.S.C. § 101. The decision is one of the early PTAB applications of the director's precedential decision in *Ex parte Desjardins* and offers important lessons for practitioners and their clients when patenting machine learning and artificial intelligence inventions, particularly inventions with claims directed to model training.

The patent application at issue was directed to efficient and accurate weight quantization for neural networks. According to the specification, weights of neural networks trained without constraints tend to have Gaussian-like distributions, and strong constraints that force weights to cluster around discrete quantization levels can leave weights in less favorable clusters and cause unacceptable accuracy loss. The claimed method trains a neural network by segmenting weight vectors that project into a same output channel into sub-vectors, applying constraints that force the sub-vectors to concentrate near a hypersurface surrounding an origin, and quantizing each sub-vector to its nearest quantization vector in a regular pattern near the hypersurface.

The examiner rejected all claims as directed to an abstract idea under the Alice/Mayo framework used by the USPTO to analyze 35 U.S.C. § 101. At Step 2A, Prong 1, the examiner found that the claims recite mathematical calculations. At Step 2A, Prong 2, the examiner found that "training the neural network using a training data set" amounted to mere instructions to apply the mathematical calculations on a generic computer, and that receiving a definition of the neural network was insignificant extra-solution data gathering. The examiner further characterized the asserted reduction in quantization error as, at most, "an improvement to the abstract idea of a mathematical concept."

On appeal, the PTAB reversed; its decision rested on a pair of principal findings.

First, the PTAB agreed with the examiner that the claims recite a judicial exception but found that the claims integrate that judicial exception into a practical application. It did not dispute that the segmenting, applying constraints, and quantizing steps all recite mathematical concepts. Nevertheless, relying on its precedent, the PTAB asked whether the plain focus of the claims is on an improvement to computer functionality itself. It found that the claims arranged the recited mathematical concepts to produce weights for a neural network through a structured training process, thereby training a neural network in a specific way. The PTAB further found that the specification identifies a problem specifically arising in the realm of neural networks, namely accuracy loss resulting from Gaussian-like weight distributions, and explains how the claimed steps keep least-mean-square and maximum quantization errors small.

Second, the PTAB found that the claims themselves reflect the improvement described in the specification. It emphasized that a specification's description of a technological improvement is not alone sufficient; the claim must include the components or steps that provide the improvement. Here, the improvement was reflected in the claimed segmenting, applying constraints, and quantizing steps. Drawing directly on *Ex parte Desjardins*, in which the director found that a claimed method of training a machine learning model improved how the model itself operates

rather than merely improving mathematical calculations, the PTAB concluded that the claims constituted an improvement in training a neural network and, thus, an improvement to how that neural network operates, and reversed the rejection.

The PTAB also reversed the examiner's obviousness rejections under 35 U.S.C. § 103.

This decision illustrates that the PTAB is applying the director's precedential decision in *Ex parte Desjardins* to model training claims. Practitioners facing Section 101 rejections of claims directed to training machine learning models should consider framing the claimed invention as an improvement to how the model itself operates and citing *Ex parte Desjardins* as controlling guidance.

Reciting mathematical concepts is not fatal to eligibility. The PTAB agreed that every model training step recited a mathematical concept, yet still found the claims eligible at Step 2A, Prong 2. Practitioners should focus their arguments on whether the claim as a whole integrates the mathematics into a specific technological application.

When drafted, the specification should identify a technical problem and explain how the claimed solution addresses it. Here, the PTAB relied heavily on the specification's explanation that unconstrained training produces Gaussian-like weight distributions and accuracy loss and on its description of how the claimed technique keeps quantization errors small. Machine learning and artificial intelligence applications should describe the technical problem specific to the model or its training and explain the mechanism by which the claimed steps solve it.

The claims must reflect the disclosed improvement. The PTAB found eligibility only after confirming that the specific steps providing the improvement appear in the claims. Practitioners should ensure that the claims recite the particular steps responsible for the technical benefit, rather than relying on result-oriented language or on the specification alone.

FOR MORE INFORMATION

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