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District Court Decision Provides Guidance on Patent Eligibility of Claims Directed to Using and Training Machine Learning Models

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Judge Williams in the District of Delaware recently granted a motion to dismiss the complaint because the patents-in-suit claim ineligible subject matter under 35 U.S.C. § 101. The patents are directed to using and training machine learning models for generating network maps (or television schedules) and optimizing event schedules. The court found the claims invalid because they recite the abstract ideas of producing network maps and event schedules using generic mathematical techniques.

Recentive Analytics, Inc. v. Fox Corp., No. 22-1545-GBW (D. Del.).

Plaintiff Recentive Analytics sued Fox Corp. for infringing U.S. Patent Nos. 10,911,811 and 10,958,957 (the "Network Map Patents") and U.S. Patent Nos. 11,386,367 and 11,537,960 (the "Machine Learning Training Patents").

The Network Map Patents are directed to a computer-implemented method of receiving a schedule of events in different time slots, assigning those events for each slot to multiple TV stations, using machine learning to optimize TV ratings, and updating the network map on demand and in real time. The representative claim of the Network Map Patents recites four steps: (1) a collecting step, i.e., receiving schedules of events; (2) an analyzing step, i.e., using a machine learning algorithm to create a network map; (3) an updating step, i.e., updating the network map based on real-time information; and (4) a using step, i.e., using the network map to determine for each station which event will be shown.

The Machine Learning Training Patents are directed to a computer-implemented method of generating an event schedule through a machine learning model that has been iteratively trained to optimize target features (e.g., attendance, profit, revenue, expenses) based on input parameters (e.g., venue availability, venue locations, ticket prices, performer fees, venue fees, scheduled performances). The representative claim of the Machine Learning Training Patents also recites four steps: (1) a collecting step, i.e., receiving event parameters and target features; (2) a training step, i.e., feeding the data into a machine learning model and training it to identify relationships; (3) an output step, i.e., inputting characteristics of future live events and receiving from the machine learning model an optimized schedule; and (4) an updating step, i.e., detecting changes to the inputs and feeding those inputs to the machine learning model to re-optimize the schedule.

The court analyzed eligibility using the Supreme Court's two-step *Alice* framework. In step one, a court determines whether the claims are "directed to a patent-ineligible concept," such as an abstract idea. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 573 U.S. 208, 217 (2014). If they are, the court proceeds to step two and considers "the elements of each claim both individually and 'as an ordered combination' to determine whether the additional elements 'transform the nature of the claim' into a patent-eligible application." *Id.* (quoting *Mayo Collaborative Servs. et al. v. Prometheus Laby's., Inc.*, 566 U.S. 66, 78-79 (2012)).

Alice Step One

Addressing *Alice* step one, the court found that the claims are directed to a patent-ineligible abstract ideas of producing network maps and event schedules using known generic mathematical techniques. The court compared the claims to the those in *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350 (Fed. Cir. 2016), because they are directed to collecting information, analyzing it and displaying certain results of the collection and analysis. Recentive made three arguments to differentiate the patent claims from those previously found to be ineligible, each of which the court rejected.

First, Recentive argued that machine learning algorithms process information differently from the human brain, in that humans process data qualitatively rather than quantitatively. The court found, however, that it is irrelevant whether a human making a network map would run a support vector machine in their brain. Instead, the court decided that the relevant question is whether the machine learning processes are algorithms, and because machine learning is algorithmic in nature, the patents are directed to an abstract idea.

Second, citing *SRI International, Inc. v. Cisco Systems, Inc.*, 930 F.3d 1295 (Fed. Cir. 2019), Recentive argued that the claims are patent eligible because the claimed processes require too much data and computing power for the human brain to do. In *SRI*, the Federal Circuit found claims eligible because the human mind was not equipped to engage in network monitoring of specific network packets. The court distinguished *SRI* because humans can engage in mathematical techniques to perform machine learning, albeit slowly. The court also found that the patents-in-suit do not improve technical functioning. Rather, they merely use a computer as a tool to perform network mapping and event scheduling. The court also relied on *Trinity Info Media, LLC v. Covalent, Inc.*, 72 F.4th 1355 (Fed. Cir. 2023), which held that a human being incapable of matching processing speed does not make an abstract process patent eligible.

Third, Recentive analogized the patents-in-suit to those in *McRO, Inc. v. Bandai Namco Games America Inc.*, 837 F.3d 1299 (Fed. Cir. 2016), which held that the use of an unconventional rule set distinguished the patents from prior art human methods if the application of the rules created a tangible result (the sequence of animated characters in *McRO*). The court disagreed that *McRO* is analogous because of the requirement in *McRO* that the rules be "unconventional" and because the Federal Circuit has been hesitant to expand *McRO* beyond its facts.

The court found this case more analogous to *In re Board of Trustees of Leland Stanford Junior University*, 991 F.3d 1245 (Fed. Cir. 2021) ("*Stanford*") and *SAP America, Inc. v. InvestPic, LLC*, 898 F.3d 1161 (Fed. Cir. 2018), in which the Federal Circuit found claims to be patent ineligible. In *Stanford*, the claims recited a computerized method of inferring certain genetic data during sequencing, and the Federal Circuit distinguished *McRO* because it involved "practical, technological improvements extending beyond improving the accuracy of a mathematically calculated statistical prediction." In *SAP*, the claims recited statistically analyzing investment information and reporting the results, and the Federal Circuit distinguished *McRO* because it was directed to "the creation of something physical," unlike the quantitative predictions in *SAP*.

Applying *Stanford* and *SAP*, the court found that the network maps and schedules are more analogous to the tangibility level in *SAP*'s financial models than the animated characters in *McRO*. The court also found that changing a subjective process where artists are trying to make a piece of art look good into an algorithmically driven one focused on quantitative prediction (as in *McRO*) is distinct from a process where both humans and algorithms are

trying to maximize TV ratings. The court also noted that *McRO* claimed "specific and unconventional" rules, while the rules in the patents-in-suit are admittedly conventional machine learning techniques described in broad functional terms.

Alice Step Two

Addressing *Alice* step two, the court decided that the patents-in-suit do not recite any inventive concept because the machine learning limitations are described only in broad functional terms and provide little guidance on model parameters or training technique. The Network Map Patents recite "using a machine learning technique" in the claims and disclose using "any suitable machine learning technique." The Machine Learning Training Patents recite and describe using either a neural network or a support vector model and iteratively training it. The court found that the patents also claim only generic and conventional computing devices.

Recentive argued that "the use of machine learning algorithms to generate network maps and optimize event schedules" is the inventive concept. Recentive relied on *Amdocs (Israel) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288 (Fed. Cir. 2016), which held eligible patent claims relating to managing data over large networks when they contained "specific enhancing limitations that necessarily incorporated the invention's distributed architecture." The court found, however, that unlike the "unconventional technological solution (enhancing data in a distributed fashion)" in *Amdocs*, it is undisputed that Recentive did not invent machine learning. In other words, the court concluded that the inventive concept that Recentive identifies is merely the abstract idea—applying machine learning to optimization of network maps and event schedules.

Practice Tip: Patent Owners should avoid describing and claiming the advance over the prior art in purely functional terms in a result-oriented way that amounts to encompassing the abstract solution no matter how implemented. Instead, Patent Owners should describe and claim technical details for tangible components in the claimed system, including how the advance over the prior art is implemented. In the context of machine learning, Patent Owners should avoid claims that are directed to generic machine learning techniques for collecting and analyzing information. Instead, Patent Owners should describe and claim specific and unconventional technological improvements to machine learning systems (e.g., in the model parameters or training techniques) that create a tangible result.

Categories

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