No. 25-____

IN THE

Supreme Court of the United States

RECENTIVE ANALYTICS, INC.,

Petitioner,

v.

FOX CORP., FOX BROADCASTING COMPANY, LLC, FOX SPORTS PRODUCTIONS, LLC,

Respondents.

On Petition for a Writ of Certiorari to the United States Court of Appeals for the Federal Circuit

PETITION FOR A WRIT OF CERTIORARI

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QUESTIONS PRESENTED

Section 101 of the Patent Act provides that "any new and useful process, machine, manufacture or composition of matter" is eligible for a patent. This Court has created judicial exceptions that exclude "laws of nature, natural phenomena, and abstract ideas" from the scope of patent-eligible subject matter. *Alice Corp. Pty. v. CLS Bank Int'l*, 573 U.S. 208, 217 (2014). Relying on these judicial exceptions, the Federal Circuit held Recentive Analytics, Inc.'s patent claims for dynamically generating and updating network maps and event schedules using iteratively trained machine-learning models are directed to unpatentable abstract ideas.

The questions presented are:

1. Whether the Federal Circuit's approach to patent eligibility under 35 U.S.C. § 101 flouts this Court's instruction to consider preemption, as discussed in *Alice Corp. v. CLS Bank International* and *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*

2. Whether the Federal Circuit erred in holding that claims directed to the application of machine-learning techniques to new data environments are categorically ineligible for patent protection under Section 101, absent a showing of improvement to the underlying machine-learning model itself.

PARTIES TO THE PROCEEDINGS BELOW

Petitioner Recentive Analytics, Inc. was appellant in the court of appeals and plaintiff in the district court.

Respondents Fox Corp., Fox Broadcasting Company, LLC, and Fox Sports Productions, LLC were appellees in the court of appeals and defendants in the district court.

RULE 29.6 DISCLOSURE STATEMENT

Recentive Analytics, Inc. has no parent corporation, and no publicly held company has a 10% or greater ownership interest in Recentive Analytics, Inc.

RELATED PROCEEDINGS

This case arises from the following proceedings:

- *Recentive Analytics, Inc. v. Fox Corp.*, No. 1:22-cv-01545-GBW (D. Del. Sept. 19, 2023) (order granting motion to dismiss); and
- *Recentive Analytics, Inc. v. Fox Corp.*, No. 23-2437 (Fed. Cir. Apr. 18, 2025) (opinion affirming motion to dismiss).

There are no other proceedings in state or federal trial or appellate courts, or in this Court, directly related to this case within the meaning of this Court's Rule 14.1(b)(iii).

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Petitioner Recentive Analytics, Inc. respectfully petitions for a writ of certiorari to review the judgment of the United States Court of Appeals for the Federal Circuit.

OPINIONS BELOW

The Federal Circuit's opinion is reported at 134 F.4th 1205. Pet. App. 1a-19a. The Federal Circuit's denial of rehearing en banc is not reported but is available at Pet. App. 53a-54a. The district court's opinion granting the motion to dismiss is reported at 692 F. Supp. 3d 438. Pet. App. 20a-51a.

JURISDICTION

The Federal Circuit entered judgment on April 18, 2025. Pet. App. 1a. It denied timely petitions for panel rehearing and rehearing en banc on July 23, 2025. Pet. App. 53a-54a. This Court has jurisdiction pursuant to 28 U.S.C. § 1254(1).

STATUTE INVOLVED

The patent-eligibility statute set forth in the Patent Act, 35 U.S.C. § 101, states: "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title."

INTRODUCTION

This case arrives at a pivotal moment for American innovation when artificial intelligence ("AI") and machine learning are reshaping the American economy. Recentive's inventions reflect that transformation, for example, by disclosing in its patents concrete, technically specific methods for dynamically generating network maps and live-event schedules using iteratively trained models that respond to real-time inputs and user-defined priorities. Yet the decision below declares those patent claims ineligible from patent protection, not because they preempt fundamental tools of science, but because they are implemented in software and apply machine learning in what the Federal Circuit deemed a "new environment." That premise is incompatible with this Court's precedents, and it threatens the very innovation the patent system exists to promote. More importantly, it abandons the preemption touchstone at the heart of this Court's

Section 101 jurisprudence: Recentive's claims do not risk monopolizing the "basic tools" of AI and treating them as abstract ideas expands the exceptions so far that they swallow the rule.

The Trump Administration has made AI innovation a national priority, recognizing that the country's economic competitiveness, national security, and technological advantage depend on accelerating the development and deployment of AI across industries. Federal agencies, including the U.S. Patent and Trademark Office, have responded by providing clearer, more predictable guidance on patent eligibility for AI-related inventions, emphasizing that eligibility inquiries must focus on whether claims as a whole integrate any judicial exception into a practical application. The decision below points the patent system in the opposite direction by effectively deeming AI-enabled applications ineligible unless they recite improvements to the underlying AI architecture itself.

Recentive's patent claims exemplify the kind of concrete, technical processes that this Court has repeatedly recognized as eligible for patent protection. The patents do not monopolize machine learning in the abstract but rather teach a particularized approach to training, weighting, and dynamically updating models to solve a domain-specific optimization problem characterized by combinatorial complexity and rapidly changing constraints. In doing so, the inventions improve the quality of outputs—producing schedules and network maps that are demonstrably more accurate and responsive than prior static systems—not merely the speed with which tasks are performed. The Federal Circuit's reduction of these advances to "using a generic machine learning technique in a particular environment" disregards the claim language,

the claimed advance, and the preemption concern that underlies *Alice*.

Left undisturbed, the Federal Circuit's decision invites courts to collapse the *Alice* two-step framework into a single, outcome-determinative test and to treat virtually any AI patent claim as abstract simply because it runs on generic computers and employs known learning techniques. That approach threatens to exclude vast swaths of real-world AI progress—where the innovation often lies in tailoring established techniques to new data, objectives, and constraints—from the patent system. The predictable result of such an approach is reduced transparency, diminished follow-on innovation, and a competitive disadvantage for American firms in the global AI race.

This case presents a clean vehicle to restore Section 101's balance. The questions are squarely presented without any relevant factual disputes. By granting certiorari, the Court can reaffirm that preemption remains the touchstone to patent eligibility; clarify that AI inventions are not disfavored simply because they leverage "generic" computing; and make clear that technically specific applications of machine-learning techniques that yield qualitatively improved results fall within the broad statutory promise that "any new and useful process" is eligible for patent protection. That guidance is needed to align patent doctrine with national policy and to ensure the United States remains the preeminent home for AI innovation.

STATEMENT OF THE CASE

I. STATUTORY BACKGROUND

Section 101 of the Patent Act of 1952 sets forth the categories of inventions eligible for patent protection, providing that patents may be granted for "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof." 35 U.S.C. § 101. This Court has recognized three judicial exceptions to this broad statutory language: "[l]aws of nature, natural phenomena, and abstract ideas." *Alice Corp. Pty. v. CLS Bank Int'l*, 573 U.S. 208, 216 (2014). In *Alice*, this Court explained that preemption is the "concern that undergirds our § 101 jurisprudence," noting that granting exclusive rights over fundamental concepts that are "the basic tools of scientific and technological work" impedes rather than fosters future innovation. *Id.* at 216, 223 (quoting *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 589 (2013)).

To implement these principles, the Court articulated a two-step framework for determining patent eligibility under Section 101. First, courts must "determine whether the claims at issue are directed to one of those patent-ineligible concepts." *Id.* at 217. If not, the claims are eligible. *Id.* If so, courts must then "consider 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.* at 217-18 (quoting *Mayo Collaborative Servs. v. Prometheus Lab'ys, Inc.*, 566 U.S. 66, 78-79 (2012)).

II. FACTUAL BACKGROUND

Recentive Analytics, Inc. ("Recentive"), a Boston-based analytics firm, developed a technological solution to a longstanding challenge in the television and live-event industries: optimizing network maps

and event schedules through advanced machine-learning-based software tools.

In 2017, Recentive created a software platform designed as an automated predictive analytics tool, tailored to optimize live-event and television-broadcast scheduling, and focused on maximizing audience viewership for events, such as sports. C.A. App. 37-38 ¶¶ 1-4. Recentive's innovative technology has been adopted by major television networks, sports franchises, and live-entertainment organizations—including the National Football League ("NFL")—who all rely on Recentive's predictive analytics tools to enhance their scheduling decisions. C.A. App. 38 ¶ 3.

In television broadcasting, a "network map" is a schedule specifying what content will air on which channel and at what time. C.A. App. 116 (1:15-17). The 2022 NFL season, featuring 272 games over 18 weeks, illustrates the complexity of this task. The variables—such as an average of five time slots each week, with most games played on Sunday, and broadcasting each to approximately 200 regional markets—yield over one million potential network-map configurations for each week of the NFL season. C.A. App. 43-44 ¶ 23. Selecting the optimal arrangement to maximize viewership thus presents a formidable technical challenge. Devising optimal schedules for live events (e.g., "concert tours, comedy shows, speaking engagements, and campaign rallies") poses comparable difficulties. C.A. App. 144 (1:18-19).

Before Recentive's innovative technology, the process of determining an optimal network map was "entirely manual, static and incapable of responding to changing conditions, fixed on one default configuration and unable to consider multiple possible schedule permutations or configurations, and unable to forecast

the impact of a proposed schedule change." C.A. App. 116 (1:23-29); C.A. App. 128 (1:31-36). Forced to rely on rudimentary generalizations about viewers' preferences to generate maps and schedules, broadcasters had no practical means to iterate over every possible map, particularly in light of proposed schedule changes, and predict the outcome of each to identify the optimal map. C.A. App. 41-44 ¶¶ 18, 23.

As the inventors of Recentive's patents recognized, earlier approaches did not fail to solve these problems due to their lack of computational power or the absence of software capable of processing large datasets. Rather, the core technical obstacle to identifying the optimal map lay in the inability of existing systems to operate dynamically and leverage the vast amounts of relevant data to generate an optimal map and automatically update it in response to new information.

The patents-at-issue solve this technical problem by disclosing methods for generating network maps and live-event schedules that function "dynamically," as opposed to the preexisting "static" processes. *See, e.g.*, C.A. App. 120 (9:66-67); C.A. App. 132 (10:8-9); C.A. App. 150 (14:2-3); C.A. App. 169 (14:12-13). Specifically, Recentive's invention involves a specific, iterative training process for a machine-learning model that enables it to prioritize certain parameters and automatically update the network map in real time based on certain criteria (e.g., geographic restrictions for certain games), which thereby optimizes the map. The iterative-training process for the machine-learning model also improves the algorithm by enabling it to identify useful patterns in the data, which enables the real-time generation of updated and optimized network maps and event schedules.

By approaching the scheduling problem through machine learning's iterative analysis and pattern recognition, Recentive's technology departs fundamentally from the preexisting reliance on static models and subjective generalizations. Rather than guessing at viewer preferences, Recentive's software iteratively trains the machine-learning model to identify relationships in the relevant data, such as betting activity, player and team following, ticketing activity, fantasy football activity, and to find and apply "useful patterns" to create updated optimized network maps and event schedules in real time. C.A. App. 42-44 ¶¶ 22-23. This results in a system that is dynamically updated, customizable, and significantly more accurate—with "prediction accuracy over 98%, which empowers users to make informed business decisions." *Id.* This enhanced accuracy represents a technological improvement over the prior systems.

Based on its invention, Recentive applied for and received four patents as relevant to these proceedings: U.S. Patent Nos. 10,911,811 ("'811 Patent"), 10,958,957 ("'957 Patent"), 11,386,367 ("'367 Patent"), and 11,537,960 ("'960 Patent").

III. PROCEEDINGS BELOW

A. Proceedings in the District Court

In November 2022, Recentive sued Fox Corp., Fox Broadcasting Company, LLC, and Fox Sports Productions, LLC (collectively, "Fox") for infringing the '811 and '957 Patents (also referred to as the "Network Map Patents"). In March 2023, Recentive asserted the '367 and '960 Patents (also referred to as the "Machine Learning Training Patents") against Fox as well.

The Machine Learning Training Patents teach a method for dynamically generating an optimal live-

event schedule using a specific machine-learning technique. That technique iteratively trains the machine-learning model on specific data to identify useful patterns and relationships. It then uses the trained model to dynamically generate an optimized event schedule by customizing the model with certain user-specific weights and updating it with real-time changes. Claim 1 of the '367 Patent is representative of the Machine Learning Training Patents claims and recites:

> 1. A computer-implemented method of dynamically generating an event schedule, the method comprising:
>
> receiving one or more event parameters for series of live events, wherein the one or more event parameters comprise at least one of venue availability, venue locations, proposed ticket prices, performer fees, venue fees, scheduled performances by one or more performers, or any combination thereof;
>
> receiving one or more event target features associated with the series of live events, wherein the one or more event target features comprise at least one of event attendance, event profit, event revenue, event expenses, or any combination thereof;
>
> providing the one or more event parameters and the one or more target features to a machine learning (ML) model, wherein the ML model is at least one of a neural network ML model and a support vector ML model;
>
> iteratively training the ML model to identify relationships between different event parameters and the one or more event target features using historical data corresponding

> to one or more previous series of live events, wherein such iterative training improves the accuracy of the ML model;
>
> receiving, from a user, one or more user-specific event parameters for a future series of live events to be held in a plurality of geographic regions;
>
> receiving, from the user, one or more user-specific event weights representing one or more prioritized event target features associated with the future series of live events;
>
> providing the one or more user-specific event parameters and the one or more user-specific event weights to the trained ML model;
>
> generating, via the trained ML model, a schedule for the future series of live events that is optimized relative to the one or more prioritized event target features;
>
> detecting a real-time change to the one or more user-specific event parameters;
>
> providing the real-time change to the trained ML model to improve the accuracy of the trained ML model; and
>
> updating, via the trained ML model, the schedule for the future series of live events such that the schedule remains optimized relative to the one or more prioritized event target features in view of the real-time change to the one or more user-specific event parameters.

The Network Map Patents relate to a method for creating network maps for broadcasters. The claims involve dynamically generating a network map using

a machine-learning technique. Claim 1 of the '811 Patent is representative of the Network Map Patents claims and recites:

> 1. A computer-implemented method for dynamically generating a network map, the method comprising:
>
> receiving a schedule for a first plurality of live events scheduled to start at a first time and a second plurality of live events scheduled to start at a second time;
>
> generating, based on the schedule, a network map mapping the first plurality of live events and the second plurality of live events to a plurality of television stations for a plurality of cities,
>
> wherein each station from the plurality of stations corresponds to a respective city from the plurality of cities,
>
> wherein the network map identifies for each station (i) a first live event from the first plurality of live events that will be displayed at the first time, and (ii) a second live event from the second plurality of live events that will be displayed at the second time, and
>
> wherein generating the network map comprises using a machine learning technique to optimize an overall television rating across the first plurality of live events and the second plurality of live events;
>
> automatically updating the network map on demand and in real time based on a change to

> at least one of (i) the schedule and (ii) underlying criteria;
>
> wherein updating the network map comprises updating the mapping of the first plurality of live events and the second plurality of live events to the plurality of television stations; and using the network map to determine for each station (i) the first live event from the first plurality of live events that will be displayed at the first time and (ii) the second live event from the second plurality of live events that will be displayed at the second time.

Fox moved to dismiss for failure to state a claim on the ground that the patents are not directed to patent-eligible subject matter. In September 2023, the district court granted Fox's motion after applying the two-step *Alice* framework.

In *Alice* Step One, the court concluded that "the Network Map Patents and the Machine Learning Training Patents are directed to the abstract ideas of producing network maps and event schedules, respectively, using known generic mathematical techniques," although it cited no evidence for its factual finding that the specific machine-learning methods recited in the claims were "generic mathematical techniques." Pet. App. 38a. Rather, the court narrowed "[t]he relevant question [to] whether the machine learning processes are mathematical algorithms" that are not eligible for patent protection, which the court answered in the affirmative. Pet. App. 41a.

At *Alice* Step Two, the district court rejected Recentive's argument that the claims include the inventive concept of using "machine learning algorithms to generate

network maps and optimize event schedules." Pet. App. 48a. Because Recentive did not invent machine learning, the court found the asserted inventive concept to merely be the abstract idea itself: "applying machine learning to optimization of network maps and event schedules." Pet. App. 48a-50a. The court therefore granted Fox's motion to dismiss for failure to state a claim.

B. The Federal Circuit's Decision

The Federal Circuit affirmed. The court recognized that the appeal presented "a question of first impression": "whether claims that do no more than apply established methods of machine learning to a new data environment are patent eligible." Pet. App. 11a.

Applying the two-step *Alice* framework, the Federal Circuit first found the patents "are directed to the abstract idea of using a generic machine learning technique in a particular environment," without considering preemption. Pet. App. 2a. The Federal Circuit found that the patents purportedly "rely on the use of generic machine learning technology in carrying out the claimed methods for generating event schedules and network maps," and that the "machine learning technology described in the patents is conventional." Pet. App. 11a. The Federal Circuit further found that "the only thing the claims disclose about the use of machine learning is that machine learning is used in a new environment"—specifically, "event scheduling and the creation of network maps." Pet. App. 14a.

At *Alice* Step Two, the Federal Circuit rejected Recentive's inventive concept as "no more than claiming the abstract idea itself." Pet. App. 17a-18a.

The Federal Circuit thus held that the claims of the Machine Learning Patents and the Network Map Patents are patent ineligible under Section 101.

On June 20, 2025, Recentive filed a combined petition for rehearing and rehearing en banc. On July 23, 2025, the Federal Circuit denied both petitions.

REASONS FOR GRANTING THE PETITION

The decision below epitomizes the Federal Circuit's departure from this Court's Section 101 jurisprudence. Rather than anchoring the analysis in the preemption concern that undergirds *Alice* and *Mayo*, the Federal Circuit recast Recentive's concrete and technologically specific claims as nothing more than "using a generic machine learning technique in a particular environment." That oversimplification reflects an unduly expansive conception of an "abstract idea" that is untethered from the principle that judicial exceptions must not swallow the rule that "any new and useful process" is eligible for patent protection. By disregarding the claim language and claimed advance, and by refusing to grapple with whether the asserted claims tie up fundamental building blocks of innovation, the Federal Circuit applied *Alice* too broadly and in a manner that undermines the predictability and coherence of patent-eligibility doctrine.

The Federal Circuit's approach especially harms AI-related innovation. The decision below effectively establishes a rule that claims applying machine-learning methods to new data environments is categorically patent ineligible unless those methods also recite improvements to the underlying model itself. That rule is both doctrinally unsound and practically harmful. It conflates the *Alice* Step One inquiry with Step Two, renders implementation on generic computers into a

disqualifying feature for software, and ignores that many technological advances arise from novel training techniques and dynamic, real-time integration—not hardware modifications. If allowed to stand, the decision will chill disclosure and investment in AI applications, at the same time the Trump Administration has made such innovation a national priority.

This case is an ideal vehicle to restore the centrality of preemption, clarify the proper bounds of the "abstract idea" exception, and provide much-needed guidance for AI and software eligibility. The questions were cleanly presented and outcome-determinative at the pleading stage, without any relevant factual disputes. The Federal Circuit itself recognized the question here as one of first impression and resolved it by announcing a sweeping rule that threatens to render vast swaths of AI-enabled innovation ineligible. Granting certiorari will permit the Court to reaffirm that Section 101 should not preclude protection for concrete, technical processes that, as here, integrate machine-learning techniques into practical applications yielding qualitatively improved results—precisely the kind of innovation the Patent Act exists to promote.

I. THE FEDERAL CIRCUIT'S INTERPRETATION OF AN "ABSTRACT IDEA" IS TOO BROAD

A. The Federal Circuit Has Ignored Preemption as the Cornerstone of This Court's Section 101 Jurisprudence

Section 101 of the Patent Act is broad, providing that anyone who invents or discovers "any new and useful process" may receive a patent for that invention. 35 U.S.C. § 101. As this Court has recognized, "[i]n choosing such expansive terms . . . modified by the

comprehensive 'any,' Congress plainly contemplated that the patent laws would be given wide scope." *Diamond v. Chakrabarty*, 447 U.S. 303, 308 (1980).

Yet the Court has also "long held that [Section 101] contains an important implicit exception" that "[l]aws of nature, natural phenomena, and abstract ideas are not patentable." *Myriad*, 569 U.S. at 589. Preemption is the concern that underlies these judicial exceptions and ensures that patents do not monopolize "the basic tools of scientific and technological work." *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972); *see also Bilski v. Kappos*, 561 U.S. 593, 611-12 (2010); *Mayo*, 566 U.S. at 72-73; *Alice*, 573 U.S. at 216-17.

Preemption has been a consistent throughline in the Court's Section 101 precedent. In *Alice*, the Court reaffirmed that the "concern that drives this exclusionary principle" is "one of pre-emption." 573 U.S. at 216. The Court has repeatedly warned that the judicial exceptions to Section 101 must not "'improperly t[ie] up the future use of' the[] building blocks of human ingenuity," lest patent law "'inhibit further discovery'" and "'impede innovation more than it would tend to promote it.'" *Id.* (quoting *Mayo*, 566 U.S. at 85). At the same time, the Court has cautioned that the judicial exceptions must not be applied so broadly as to "swallow all of patent law." *Id*. at 217.

To strike this balance, *Alice* articulated a two-step test to determine patent eligibility:

(1) determine whether the patent claims are directed to a patent-ineligible concept (i.e., a law of nature, natural phenomenon, or abstract idea); and

> (2) if so, assess whether the claim elements, "individually" or "'as an ordered combination,'" add an "'inventive concept'" sufficient to transform the claim into patent-eligible subject matter.

Id. (quoting *Mayo*, 566 U.S. at 79). Crucially, the Court emphasized that the "concern that drives this exclusionary principle" and "undergirds [its] § 101 jurisprudence" remains preemption. *Id.* at 216, 223.

The Federal Circuit, however, has strayed from this core principle. Rather than focusing on whether a patent claim threatens to preempt the fundamental building blocks of science and technology, the Federal Circuit has repeatedly held claims ineligible even where no preemption concern exists. For example, in *Aviation Capital Partners, LLC v. SH Advisors, LLC*, the court recently found claims related to determining the taxability status of aircrafts ineligible. No. 2024-1099, 2025 WL 1303663 (Fed. Cir. May 6, 2025). There, the court observed, contrary to this Court's caselaw: "[W]hile preemption may signal patent ineligible subject matter, the absence of complete preemption does not demonstrate patent eligibility." *Id.* at *3 (alteration in original) (quoting *FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1098 (Fed. Cir. 2016)); *see also, e.g.*, *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1150 (Fed. Cir. 2016) (holding that an argument about the absence of complete preemption "misses the mark"); *FairWarning IP*, 839 F.3d at 1098 ("But even assuming that the . . . patent does not preempt the field, its lack of preemption does not save these claims."); *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1362-63 (Fed. Cir. 2015) ("[T]hat the claims do not preempt all price optimization or may be limited to [a particular] setting do not make them any less abstract."); *Ariosa Diagnostics, Inc. v. Sequenom,*

Inc., 788 F.3d 1371, 1379 (Fed. Cir. 2015) ("Where a patent's claims are deemed only to disclose patent ineligible subject matter . . . preemption concerns are fully addressed and made moot."). Instead, the Federal Circuit treats "questions on preemption . . . inherent in and resolved by § 101 analysis," specifically, the *Alice* two-step test. *Ariosa*, 788 F.3d at 1379.

The Federal Circuit, including in the decision below, has increasingly declined to even consider preemption. *See, e.g.*, *AI Visualize, Inc. v. Nuance Commc'ns, Inc.*, 97 F.4th 1371 (Fed. Cir. 2024); *Broadband iTV, Inc. v. Amazon.com*, *Inc.*, 113 F.4th 1359 (Fed. Cir. 2024); *Int'l Bus. Machs. Corp. v. Zillow Grp., Inc.*, 50 F.4th 1371 (Fed. Cir. 2022). What was once "part and parcel with the §101 inquiry," *Return Mail, Inc. v. U.S. Postal Serv.*, 868 F.3d 1350, 1370 (Fed. Cir. 2017), *rev'd on other grounds*, 587 U.S. 618 (2019), is now a mere afterthought.

Departing from preemption has its consequences. The Federal Circuit's patent-eligibility test no longer provides clear guidance to parties on whether a patent claim is directed to an "abstract idea" and instead has led to unpredictable and inconsistent results. This has allowed courts to invalidate key technological innovations that do not threaten to preempt fundamental scientific tools.

This Court has described the judicial exceptions to patent eligibility, including abstract ideas, as narrow, targeting only claims to "intellectual concepts." *See Gottschalk*, 409 U.S. at 67; *Alice*, 573 U.S. at 218; *Mayo*, 566 U.S. at 71. As a result, the Court's cases have excluded from patentability a narrow set of true "abstract ideas," including mathematical algorithms, *Parker v. Flook*, 437 U.S. 584 (1978); basic financial concepts, *Bilski*, 561 U.S. 593; and methods of organizing human activity, *Alice*, 573 U.S. at 220.

These carveouts were never intended to reach technological inventions that do not monopolize the building blocks of innovation.

But the Federal Circuit's departure from the Court's approach has led to the invalidation of numerous key technological advances. The Federal Circuit frequently frames inventions at such a high level of abstraction that virtually any claim can be cast as an "abstract idea." This includes patents relating to technological improvements to tangible items, such as claims directed to an improved digital camera, which the Federal Circuit reduced to the "abstract idea of taking two pictures . . . and using one picture to enhance the other," *Yu v. Apple Inc.*, 1 F.4th 1040, 1042-43 (Fed. Cir. 2021); and claims relating to electric vehicle charging stations, which the Federal Circuit oversimplified to "the abstract idea of communication over a network for interacting with a device," *ChargePoint, Inc. v. SemaConnect, Inc.*, 920 F.3d 759, 768 (Fed. Cir. 2019). *See also Am. Axle & Mfg., Inc. v. Neapco Holdings LLC*, 967 F.3d 1285, 1292 (Fed. Cir. 2020) (holding claims for manufacturing driveline propeller shafts are merely directed to the "abstract idea" of applying a natural law).

Restoring preemption as a cornerstone of Section 101 analysis would provide much-needed structure and predictability for parties. Recentering the preemption principle and grounding the "abstract idea" exception in its ordinary meaning will restore coherence to Section 101 jurisprudence and ensure that the patent system continues to foster, rather than impede, technological innovation.

B. The Federal Circuit's Decision Confirms That It Applies *Alice* Too Broadly

The Federal Circuit's decision in this case illustrates the flaws in its approach. Recentive's asserted patent claims—for both the Machine Learning Training Patents and Network Map Patents—are directed to specific methods of dynamically generating network maps and event schedules using specific machine-learning techniques. Recentive's inventions address a real-world technical problem—how to process vast, ever-changing data to produce optimal schedules—by employing iterative training of machine-learning models, user-specified parameters, and real-time updates. These are not "abstract intellectual concepts," *Mayo*, 566 U.S. at 71, or "idea[s] of [themselves]," *Alice*, 573 U.S. at 218, but rather concrete, technological processes that improve the functioning of existing software and systems.

At *Alice* Step One, the Federal Circuit failed to meaningfully engage with the actual claim language and the technological advances recited in the patents. The court oversimplified the claims—reducing them to a collecting step, an iterative-training step, an output step, and an updating step—thereby stripping away the specificity and technical detail that, considered as a whole, distinguish these inventions from mere abstract ideas. *See* Pet. App. 3a, 17a-18a. Even more concerning, the Federal Circuit's oversimplification did not stop there, as the court characterized Recentive's claims as merely "directed to the abstract idea of using a generic machine learning technique in a particular environment." Pet. App. 2a. This type of oversimplification not only runs afoul of this Court's warning that courts must "tread carefully in construing this exclusionary principle lest it swallow all of patent law[,]"

Alice, 573 U.S. at 217, but it also directly contradicts the Federal Circuit's own mandate that "[t]he Step 1 'directed to' analysis . . . depends on an accurate characterization of what the claims require and of what the patent asserts to be the claimed advance." *TecSec, Inc. v. Adobe Inc.*, 978 F.3d 1278, 1294 (Fed. Cir. 2020).

The Federal Circuit's approach in this case is particularly problematic because, as Recentive argued, the asserted claims recite a specific solution to a concrete problem, not a generalized idea and certainly not the alleged abstract concept of using a generic machine-learning technique in a particular environment. *See* Recentive C.A. Opening Br. 4-14, 36-40. For example, the claimed training process on relevant historical and real-time data improves the underlying machine-learning model. *See* C.A. App. 150 (14:16-43); C.A. App. 169 (14:23-53). Once the model is trained, it becomes capable of performing functions it could not before the training, including, for example, optimizing schedules more accurately than was possible before. *See* C.A. App. 150 (14:16-43); C.A. App. 169 (14:23-53).

The claims do not merely automate a known process or make a known process more efficient by simply doing it on a computer. Rather, the specific techniques recited in Recentive's claims enable the generation of network maps and event schedules that are far more accurate, dynamic, and responsive to real-world conditions than was previously possible. The use of machine learning in the claimed manner—iteratively training models on historical and real-time data, prioritizing user-specified parameters, and dynamically updating outputs—results in qualitative improvements in network maps and schedules, not just increased speed or automation. *See* C.A. App. 150 (14:16-43); C.A. App. 169 (14:23-53).

Because the Federal Circuit refused to recognize the specific technical contribution of these claims, it rejected Recentive's argument that applying machine learning to the field of television broadcasting and event scheduling confers patent eligibility. *See* Pet. App. 15a ("We see no merit to Recentive's argument that its patents are eligible because they apply machine learning to this new field of use.").

Further proof that the Federal Circuit oversimplified the claims is the fact that it did not even analyze the Network Map Patents separately from the Machine Learning Training Patents, despite acknowledging that these two groups of patents are separate and claim different inventions. *Compare* Pet. App. 11a-17a (analyzing only the "Machine Learning Training Patents" at Step One), *with* Pet. App. 2a-7a (describing Recentive's four asserted patents as "fall[ing] into two groups"). The Machine Learning Training Patents claim a process for training specific machine-learning models to generate and update schedules in real time as new data becomes available, *see* Pet. App. 56a-57a, which is a concrete, technical solution to the long-standing problem of static, inflexible scheduling in the live-events industry. Meanwhile, the Network Map Patents claim a method for dynamically generating and updating optimal network maps using machine learning. *See* Pet. App. 60a-61a. Again, these claims are not merely directed to the abstract idea of using machine learning "in a new environment," as the Federal Circuit asserted, Pet. App. 14a, but to a specific, inventive process that improves the quality and adaptability of network mapping in a complex, data-rich context.

In *Alice* Step Two, the Federal Circuit's analysis—requiring a showing of improvement to generic computer

components—was equally flawed. *See* Pet. App. 13a. The Federal Circuit dismissed the dynamic, iterative, and real-time aspects of the claimed methods as "no more than claiming the abstract idea itself," and found no "inventive concept" because the claims could be implemented on "generic" computing equipment and components. Pet. App. 11a-12a & n.4, 17a-18a. The Federal Circuit's holding at *Alice* Step Two cannot be reconciled with its articulation of the abstract idea as "using a generic machine learning technique in a particular environment, with no inventive concept." Pet. App. 2a.

This approach to patent eligibility is especially problematic for software inventions. Virtually all software claims are implemented on generic computers. And virtually all software claims "apply" or "practice" whatever nebulous abstract idea was identified at Step One because the claimed invention necessarily practices the idea. Those software claims do so using "conventional" technology because that is the very nature of software—it is meant to run on existing computing equipment. Thus, the Federal Circuit's analysis eviscerates patent protection for software inventions.

The Federal Circuit's analysis ignores the reality that all software, at its core, processes information and does so on conventional equipment. This Court has expressly recognized that even processes running on conventional "computer programs" are not categorically "unpatentable." *Bilski*, 561 U.S. at 605. The Federal Circuit's insistence on searching for improvements to computer hardware or components, rather than recognizing inventive processes implemented in software, aims to resurrect the "machine-or-transformation" test that this Court rejected in *Bilski*. *See id.* at 602-06.

The Federal Circuit's refusal to credit these advances, and its failure to consider preemption, confirms that its application of *Alice* has strayed far from this Court's guidance and threatens to stifle precisely the kind of technological innovation the patent system is meant to encourage.

II. THE FEDERAL CIRCUIT'S SECTION 101 TEST LEAVES MACHINE-LEARNING TECHNOLOGY EXEMPT FROM PATENT PROTECTION

A. Protecting Artificial Intelligence and Machine Learning Is Critical to American Innovation and Competitiveness

AI and machine learning are widely recognized as the engines of the next great wave of technological and economic progress. Experts have projected AI to be used to accelerate innovation and generate up to $560 billion of potential annual economic value.[1]

It is therefore no surprise that the Trump Administration has made AI advancement a national priority, launching the "Winning the AI Race: America's AI Action Plan," which focuses on, among other things, ensuring that the United States "innovate[s] faster and more comprehensively than our competitors in the development and distribution of new AI technology across every field."[2] These efforts are premised on the

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[1] Alex Singla et al., *The Next Innovation Revolution—Powered by AI*, MCKINSEY & CO. (June 20, 2025), https://www.mckinsey.com/capabilities/quantumblack/our-insights/the-next-innovation-revolution-powered-by-ai.

[2] WHITE HOUSE, WINNING THE RACE: AMERICA'S AI ACTION PLAN 1 (July 2025), https://www.whitehouse.gov/wp-content/uploads/2025/07/Americas-AI-Action-Plan.pdf.

understanding that robust innovation in AI technology, including machine learning, is essential to maintaining the nation's technological edge and to addressing critical challenges across diverse fields, including healthcare, telecommunications, energy, transportation, and national defense.

Patents play an important role in supporting AI innovation and unlocking its full potential economic value for the country. For example, a study on the market assessment of the value placed on AI and non-AI patents from 1995 to 2020 found investors place a 9% value premium on AI patents over non-AI patents, and AI patents have 26% more forward citations than non-AI patents, indicating a higher potential for and valuation of follow-on innovations.[3] And investors in the software industry cite patent eligibility as a key consideration in deciding whether to invest in the company developing the technology.[4]

The U.S. Patent and Trademark Office ("USPTO") has also recognized the centrality of AI and machine learning to the future of American innovation. In a recent policy memorandum, the USPTO issued guidance to patent examiners specifically addressing the patentability of AI and software inventions under Section 101, acknowledging that these inventions "often encounter challenges in evaluating whether the

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[3] Wilbur X. Chen et al., *The Value of AI Innovations* (Harv. Bus. Sch., Working Paper 24-069, 2024), https://www.hbs.edu/ris/Publication%20Files/24-069_e5bcc300-d7f3-43b7-af9f-945b5937495e.pdf.

[4] *See* David O. Taylor, *Patent Eligibility and Investment*, 41 CARDOZO L. REV. 2019, 2058 tbl.12 (2020); *see also id.* at 2069 tbl.20 (39% of investors stated that decreased availability of software patents would somewhat or strongly decrease their willingness to invest).

claims are directed to a judicial exception when analyzing claims for subject matter eligibility."[5] As the memorandum explained, the eligibility analysis should focus on "whether the claim as a whole integrates the recited judicial exception [e.g., an abstract idea] into a practical application of the exception."[6] Further supporting the eligibility of Recentive's patents, the USPTO's Manual of Patent Examining Procedure ("MPEP") offers persuasive guidance consistent with this Court's precedent. Notably, the MPEP provides hypothetical examples of patent-eligible claims, including a method for training a neural network for facial detection—an example that closely parallels Recentive's Machine Learning Training Patents. MPEP § 2106.04(a)(1) (9th ed., Rev. 01.2024, Nov. 2024).[7] The Federal Circuit's contrary decision injects uncertainty in the patent system for inventors, at the same time the USPTO has been trying to make the patent system more certain for inventors.[8]

In the wake of the Federal Circuit's decision in this case, even the USPTO Director has intervened to reinforce that AI innovations remain eligible when claims, viewed as a whole, integrate any recited

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[5] Memorandum from Charles Kim, Deputy Comm'r for Patents, Reminders on Evaluating Subject Matter Eligibility of Claims Under 35 U.S.C. 101 at 1 (Aug. 4, 2025), https://www.uspto.gov/sites/default/files/documents/memo-101-20250804.pdf.

[6] *Id.* at 3.

[7] Available at https://www.uspto.gov/web/offices/pac/mpep/mpep-2100.pdf.

[8] *See* Ryan Davis, *Stewart Says New Patent Policies Aim to Bring Stability*, LAW360 (Sept. 8, 2025, 12:33 AM), https://www.law360.com/articles/2364638 (quoting then-Acting USPTO Director Coke Morgan Stewart: "To have a stable economy, we need a stable patent system.").

judicial exception into a practical application. In a precedential decision, the Director reversed the Patent Trial and Appeal Board's rejection of patent claims related to "training a machine learning model" as ineligible under Section 101. In doing so, the Director cautioned that "[c]ategorically excluding AI innovations from patent protection in the United States jeopardizes America's leadership in this critical emerging technology," but the panel's original reasoning would render "many AI innovations [as] 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."[9]

The Federal Circuit's decision also runs counter to national priorities and policy initiatives. Any invention that uses machine learning to achieve a new and improved end can be oversimplified as "directed to the abstract idea of using a generic machine learning technique in a particular environment," as was the case with Recentive's claims. Thus, when the Federal Circuit held that "patents that do no more than claim the application of generic machine learning to new data environments, without disclosing improvements to the machine learning models to be applied, are patent ineligible under Section 101," Pet. App. 19a, the court precluded the patenting of a new application of existing machine-learning tools to solve problems in new domains, as Recentive did. In doing so, the Federal Circuit effectively declared a vast swath

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[9] *Ex Parte Desjardins*, Appeal 2024-000567, Application 16/319,040 (Sept. 26, 2025) (Squires, USPTO Director), https://www.uspto.gov/sites/default/files/documents/202400567-arp-rehearing-decision-20250926.pdf.

of AI and machine-learning innovation as categorically unpatentable. This rule threatens to chill U.S. investment and progress in the development of new and improved applications of machine learning, as innovators and investors in this country will be deterred by the prospect that their inventions—no matter how valuable or transformative—will be denied patent protection. At minimum, these innovations will not be disclosed to the public through the patent system, which has always operated as a quid pro quo, exchanging disclosure of information "to the public for further research and development" for a temporary monopoly over the invention. MPEP § 2162.

Machine-learning techniques have been applied to various new domains, most prominently in telecommunications, transportation, and life and medical sciences, all of which are now threatened by the Federal Circuit's decision.[10] For example, machine learning has been applied to a wide array of new data types and fields for:

- Developing speech-recognition technology that uses machine learning to convert radio broadcasts into text that can be read various languages;
- Equipping a smart watch with a seizure-detection algorithm, built using machine learning;
- Improving agricultural yields by analyzing weather, soil, and crop data; and
- Creating new perfume fragrances using machine-learning algorithms to sort through hundreds of

[10] WORLD INTELL. PROP. ORG. (WIPO), THE STORY OF AI IN PATENTS (2019), https://www.wipo.int/tech_trends/en/artificial_intelligence/story.html.

> thousands of formulas and thousands of raw materials.[11]

Under the Federal Circuit's rule, each of these innovations would be ineligible for patent protection unless the inventor could also show a technical improvement to the underlying machine-learning model—an arbitrary and unnecessary hurdle that will stifle progress in precisely the areas where it is most needed.

The consequences of this approach are not hypothetical. Without patent protection, innovators will turn to other forms of intellectual-property protection for their inventions instead.[12] For example, IBM has publicly stated that ongoing uncertainty about patent eligibility would force it to "rely more on trade secret and copyright protection" rather than patents, which is detrimental to the public interest.[13] Scholars and industry leaders alike have warned that the Federal Circuit's unpredictable and restrictive approach to software patent eligibility "disincentiviz[es] innovation and progress" by encouraging inventors to keep their advances secret, rather than sharing them through the patent system.[14]

Slowing down the progress of innovation in AI-related applications is particularly dangerous given the global race for leadership in these technologies. As

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[11] *Id.*

[12] *See* Philip Hawkyard, Note, *The Collapse of Alice's Wonderland: Mayo's Faulty Two-Step Framework and a Possible Solution to Patent-Eligibility Jurisprudence*, 74 HASTINGS L.J. 1221, 1224-25 (2023).

[13] *Id.*

[14] *See* Maxwell H. Terry, Note, *Hello, World? Domestic Software Patent Protection Stands Alone Due to Uncertain Subject Matter Eligibility Jurisprudence*, 108 MINN. L. REV. 403, 410 (2023).

WIPO has reported, the most AI-related patent filings are made in the United States and China.[15] Moreover, "China has outpaced the [United States] in AI and machine learning (ML) patents every year since 2021, with more than double the US patents granted in 2023 alone."[16] Patent protection is a critical factor in attracting investment, fostering collaboration, and ensuring that American innovators can compete on a level playing field in the global marketplace. If the United States adopts a legal regime that categorically excludes a broad class of AI and machine-learning inventions from patent protection, it risks ceding technological leadership to other countries with more innovation-friendly policies.

In sum, the Federal Circuit's approach to Section 101, exemplified by the case below, threatens to undermine American leadership in AI and machine learning by denying patent protection to a vast array of valuable and transformative inventions. This result is not only contrary to the text and purpose of the Patent Act but also to the nation's urgent need to foster innovation in the technologies that will define the future.

B. The Federal Circuit's Decision Reflects a Fundamental Misunderstanding of Machine Learning

The Federal Circuit's application of *Alice* in this case reveals a profound misunderstanding of how machine learning operates and how innovation in this field occurs. Its reasoning—"the claimed methods are not

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[15] WIPO, *supra* note 10.

[16] Andrew Singer, *Stakes Rising in the US-China AI Race*, GLOB. FIN. MAG. (Sept. 9, 2024), https://gfmag.com/economics-policy-regulation/us-china-competition-generative-ai/.

rendered patent eligible by the fact that (using existing machine learning technology) they perform a task previously undertaken by humans with greater speed and efficiency than could previously be achieved"—misses the essence of machine learning and the nature of Recentive's invention. Pet. App. 16a. The court's focus on speed and efficiency ignores the qualitative improvements that machine learning can deliver and that Recentive's patents specifically claim.

Machine learning is not simply about automating human tasks or making them faster. The true power of machine learning lies in its ability to uncover patterns, optimize outcomes, and generate results that were previously unattainable by human effort or traditional algorithms.[17] Recentive's technology, for example, has been credited with revolutionizing the way major sports leagues—including the NFL—schedule games and allocate broadcast slots. By leveraging machine learning to analyze vast troves of historical and real-time data, Recentive's system produces network maps and event schedules that are not just faster, but demonstrably better—more accurate in viewership projections and more effective at maximizing viewership and revenue. This is not a mere improvement in efficiency; it is a leap in the quality and sophistication of the output, as recognized by industry leaders and widely reported in the press.[18]

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[17] *See* Sara Brown, *Machine Learning, Explained*, MIT MGMT. SLOAN SCH.: IDEAS MADE TO MATTER (Apr. 21, 2021), https://mitsloan.mit.edu/ideas-made-to-matter/machine-learning-explained.

[18] *See, e.g.*, Around the NFL Staff, *Recentive Helps Drive Sundays*, NFL.COM (Dec. 3, 2020, 1:28 PM), https://www.nfl.com/news/recentive-helps-drive-sundays ("By generating optimal television maps in seconds, Recentive helps the NFL and its partners make smart business decisions while at the same time

The Federal Circuit's decision also reflects a categorical error in its treatment of field-specific applications of machine learning. For example, the court stated that "[a]n abstract idea does not become nonabstract by limiting the invention to a particular field of use or technological environment." Pet. App. 15a (alteration in original) (quoting *Intell. Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1366 (Fed. Cir. 2015)). While this may be true in some contexts, it is inapposite in the realm of machine learning, where the inventive step often lies in the application of machine-learning techniques to new datasets and problem domains. In machine learning, the process of adapting, training, and deploying a model for a novel use case is itself a source of great innovation. The Federal Circuit's refusal to recognize this reality forecloses patent protection for a vast array of valuable advances—those that arise not from inventing a new machine-learning model, but from leveraging the power of machine learning in innovative ways to solve previously intractable problems in new contexts.

Categorizing sophisticated, trained machine-learning models as "generic," as the Federal Circuit did here, is fundamentally flawed. Pet. App. 11a ("Both sets of patents rely on the use of generic machine learning

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providing fans with more of what they want to watch on Sunday afternoons."); *see also* Rick Maese, *How AI Shaped Your Favorite NFL Team's Schedule*, WASH. POST (May 15, 2025), https://www.washingtonpost.com/sports/2025/05/15/nfl-schedule-ai/; Joe Lemire, *NFL Increasingly Relies on Predictive Modeling to Develop 2025 Schedule*, SPORTS BUS. J. (May 16, 2025), https://www.sportsbusinessjournal.com/Articles/2025/05/16/nfl-increasingly-relies-on-predictive-modeling-to-develop-2025-schedule/; Ken Belson, *How the N.F.L. Used Supercomputers to Set Its TV (and Streaming) Schedule*, N.Y. TIMES (Sept. 7, 2023), https://www.nytimes.com/2023/09/07/sports/football/nfl-tv-streaming-schedule.html.

technology in carrying out the claimed methods for generating event schedules and network maps."). The court faulted Recentive's patents for not claiming a method for "improving the mathematical algorithm or making machine learning better." Pet. App. 13a. But this sets the bar for eligibility too high and misunderstands the nature of machine learning. Creating a trained machine-learning model, like Recentive's—that can identify relationships between event parameters (e.g., available venues in geographic regions, ticket prices, performer and venue fees, and scheduled performance) and target features (e.g., attendance, profit, revenue, and expenses) using historical data and then optimize a national broadcast schedule in real time—is wholly different from running a generic algorithm on a standard computer. The innovation lies, at least in part, in the particularized training, the selection and weighting of features, the iterative refinement, and the integration of real-world constraints—all of which are reflected in Recentive's patent claims and are essential to the model's success in its intended domain.

For those reasons, the Federal Circuit's assertion that "[t]he requirements that the machine learning model be 'iteratively trained' or dynamically adjusted in the Machine Learning Training patents do not represent a technological improvement" is sorely misguided. Pet. App. 12a. Iterative training is not a trivial or incidental aspect of machine learning; it is the very process by which models become capable of performing complex tasks.[19] To preclude patent eligibility merely because iterative training is a known

[19] *See* Dave Bergmann & Cole Stryker, *What Is Model Training?*, IBM (Feb. 13, 2025), https://www.ibm.com/think/topics/model-training.

feature of machine learning is to stifle innovation in this field entirely and conflicts with how the Federal Circuit has treated other computer-implemented inventions. For example, in *Enfish, LLC v. Microsoft Corp.*, the Federal Circuit had no problem finding patent claims directed to a new type of database to be patent eligible because it improved the computer's functioning. 822 F.3d 1327 (Fed. Cir. 2016). Here, the claimed process of training a machine-learning model in a particular way—using specific data, parameters, and iterative techniques—improves the model itself, enabling it to achieve results that were previously impossible. *See* Pet. App. 33a (citing C.A. App. 42-44 ¶¶ 20, 22, 23). The particularized approach to training is not merely the application of a known technique to a new environment; it is an inventive process that transforms the model's capabilities and opens new technological frontiers. This decision has a chilling effect on improving machine-learning models to function for new applications.

Finally, the Federal Circuit imposes a requirement that is fundamentally at odds with machine learning when it insists that "neither the claims nor the specifications describe how such an improvement was accomplished. That is, the claims do not delineate steps through which the machine learning technology achieves an improvement." Pet. App. 13a. Machine-learning models are, by design, trained to discover solutions through exposure to data and iterative adjustment. The improvement is not always reducible to a simple, stepwise algorithm; rather, it emerges from the training process itself, which is often described in terms of data selection, feature engineering, and model architecture. Demanding that patent owners explain "how" the improvement is achieved in the same terms as traditional software ignores the

unique character of machine learning and risks excluding from patent protection the very advances that are driving progress in the field. Indeed, applicants for a patent are permitted to claim their inventions at different levels of breadth; whether a particular approach is deserving of patent protection is properly resolved under Sections 102 and 103 of the Patent Act, but the Federal Circuit is wrong to create a categorical barrier to claims involving such techniques at the threshold question of subject matter eligibility under Section 101.

The Federal Circuit's closing assurance—that it "hold[s] only that patents that do no more than claim the application of generic machine learning to new data environments, without disclosing improvements to the machine learning models to be applied, are patent ineligible under § 101"—offers little comfort. Pet. App. 19a. In practice, the decision's rigid approach will exclude from patent protection a vast array of real-world machine-learning innovations, including those that arise from the creative application and training of existing models to solve new and important problems. This is not what the Patent Act requires, and it is not what innovation policy demands. The Court should grant certiorari to correct this fundamental misunderstanding and restore the proper scope of patent eligibility for machine-learning inventions.

III. THIS CASE IS AN IDEAL VEHICLE FOR RESOLVING THE OVERBROAD APPLICATION OF THE PATENT-ELIGIBILITY TEST IN A CASE INVOLVING A MATTER OF FIRST IMPRESSION

This case presents an ideal opportunity for the Court to address the Federal Circuit's overbroad and unpredictable application of Section 101, particularly

in the context of AI and machine learning. The patent-eligibility issues were directly raised and addressed by the district court and the Federal Circuit, and the Federal Circuit's opinion is a paradigmatic example of the overbroad application of an invalidating test that now pervades this area of law. This case thus offers the Court a clear record and a representative set of facts to clarify the proper contours of the "abstract idea" exception and to reaffirm the intended scope of the two-step framework articulated in *Alice*.

The case's procedural posture and the nature of the claims at issue make it an ideal vehicle for Supreme Court review. The district court's and the Federal Circuit's analysis was outcome-determinative at the Rule 12(b)(6) stage, with no factual disputes or claim-construction issues left unresolved. The Court can thus address the legal questions presented on a clean record and provide much-needed guidance to lower courts, the USPTO, and the innovation community regarding the proper application of Section 101 to machine-learning inventions.

Moreover, this case is particularly well-suited for review because it presents a matter of first impression regarding the patent eligibility of machine-learning inventions. The Federal Circuit expressly acknowledged that it was addressing, for the first time, whether claims that apply established machine-learning methods to new data environments are patent eligible under Section 101. Pet. App. 11a. The court's application of *Alice* in this context functionally created a sweeping new rule that categorically bars inventions based in machine learning from patent protection. This case thus provides the Court with a timely and concrete opportunity to address how the eligibility framework

should apply to one of the most important and rapidly evolving areas of a nascent technology.

The urgent need for this Court's intervention is widely recognized. Judges across the Federal Circuit have repeatedly urged the Supreme Court to provide clarity on the proper scope of Section 101, with nearly "every judge" on that court having "request[ed] Supreme Court clarification." *Am. Axle & Mfg., Inc. v. Neapco Holdings LLC*, 977 F.3d 1379, 1382 (Fed. Cir. 2020) (Moore, J., concurring). Legal scholars and practitioners have echoed these calls. *See id.* In the absence of clear guidance, the Federal Circuit has been deeply divided on Section 101 issues, as reflected in numerous fractured decisions. *See, e.g.*, *Realtime Data LLC v. Array Networks Inc.*, No. 2021-2251, 2023 WL 4924814 (Fed. Cir. Aug. 2, 2023) (panel split over patent eligibility); *Yu*, 1 F.4th 1040 (same); *Am. Axle & Mfg., Inc. v. Neapco Holdings LLC*, 966 F.3d 1347 (Fed. Cir. 2020) (denying rehearing en banc with multiple concurring and dissenting opinions). The continued division and uncertainty underscore the pressing need for this Court's review.

In short, this case offers the Court an ideal context in which to resolve the confusion that has plagued patent-eligibility jurisprudence and to restore balance to the law in a field of critical national importance.

CONCLUSION

The Court should grant the petition.

Respectfully submitted,

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October 21, 2025

APPENDIX

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APPENDIX A

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

RECENTIVE ANALYTICS, INC.,
Plaintiff-Appellant

v.

FOX CORP., FOX BROADCASTING COMPANY, LLC, FOX SPORTS PRODUCTIONS, LLC,
Defendants-Appellees

2023-2437

Appeal from the United States District Court for the District of Delaware in No. 1:22-cv-01545-GBW, Judge Gregory Brian Williams.

Decided: April 18, 2025

ROBERT FREDERICKSON, III, Goodwin Procter LLP, Boston, MA, argued for plaintiff-appellant. Also represented by JESSE LEMPEL; ALEXANDRA D. VALENTI, New York, NY.

RANJINI ACHARYA, Pillsbury Winthrop Shaw Pittman LLP, Palo Alto, CA, argued for defendants-appellees. Also represented by MICHAEL ZELIGER; EVAN FINKEL, MICHAEL SHIGEYORI HORIKAWA, Los Angeles, CA.

Before DYK, and PROST, *Circuit Judges*,
and GOLDBERG,
Chief District Judge.[1]

DYK, *Circuit Judge.*

This case presents the question of patent eligibility of four patents directed to the use of machine learning. The patents claim the use of machine learning for the generation of network maps and schedules for television broadcasts and live events.

Appellant Recentive Analytics, Inc. ("Recentive"), the owner of the patents, sued appellees Fox Corp., Fox Broadcasting Company, LLC, and Fox Sports Productions, LLC (collectively, "Fox") for infringement. The district court dismissed, concluding that the patents were directed to ineligible subject matter under 35 U.S.C. § 101. We affirm because the patents are directed to the abstract idea of using a generic machine learning technique in a particular environment, with no inventive concept.

BACKGROUND

I

Recentive is the owner of U.S. Patent Nos. 10,911,811 ("'811 patent"), 10,958,957 ("'957 patent"), 11,386,367 ("'367 patent"), and 11,537,960 ("'960 patent"). The patents purport to solve problems confronting the entertainment industry and television broadcasters: how to optimize the scheduling of live events and how to optimize "network maps," which

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[1] Honorable Mitchell S. Goldberg, Chief District Judge, United States District Court for the Eastern District of Pennsylvania, sitting by designation.

determine the programs or content displayed by a broadcaster's channels within certain geographic markets at particular times. The patents fall into two groups that the parties refer to as the "Machine Learning Training" patents and the "Network Map" patents.

A. The Machine Learning Training Patents

The '367 and '960 patents are the "Machine Learning Training" patents. Both are titled "Systems and Methods for Determining Event Schedules." They share a specification and concern the scheduling of live events. Claim 1 of the '367 patent is representative of the Machine Learning Training patents and recites a method containing: (i) a collecting step (receiving event parameters and target features); (ii) an iterative training step for the machine learning model (identifying relationships within the data); (iii) an output step (generating an optimized schedule); and (iv) an updating step (detecting changes to the data inputs and iteratively generating new, further optimized schedules).[2]

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[2] Claim 1 of the '367 patent recites:

A computer-implemented method of dynamically generating an event schedule, the method comprising:

> receiving one or more event parameters for series of live events, wherein the one or more event parameters comprise at least one of venue availability, venue locations, proposed ticket prices, performer fees, venue fees, scheduled performances by one or more performers, or any combination thereof;
>
> receiving one or more event target features associated with the series of live events, wherein the one or more event target features comprise at least one of event attendance, event profit, event revenue, event expenses, or any combination thereof;

providing the one or more event parameters and the one or more target features to a machine learning (ML) model, wherein the ML model is at least one of a neural network ML model and a support vector ML model;

iteratively training the ML model to identify relationships between different event parameters and the one or more event target features using historical data corresponding to one or more previous series of live events, wherein such iterative training improves the accuracy of the ML model;

receiving, from a user, one or more user-specific event parameters for a future series of live events to be held in a plurality of geographic regions;

receiving, from the user, one or more user-specific event weights representing one or more prioritized event target features associated with the future series of live events;

providing the one or more user-specific event parameters and the one or more user-specific event weights to the trained ML model;

generating, via the trained ML model, a schedule for the future series of live events that is optimized relative to the one or more prioritized event target features;

detecting a real-time change to the one or more user-specific event parameters;

providing the real-time change to the trained ML model to improve the accuracy of the trained ML model; and

updating, via the trained ML model, the schedule for the future series of live events such that the schedule remains optimized relative to the one or more prioritized event target features in view of the real-time change to the one or more user-specific event parameters.

'367 patent, col. 14 ll. 2–49.

The specification teaches that the machine learning model may be "trained using a set of training data," which can include "historical data from previous live events or series of live events." *Id.* col. 6 ll. 5–8. That historical data may include prior event dates, venue locations, and ticket sales. *Id.* col. 6 ll. 6–11. In operating the machine learning model, users enter "target features," which are a user's selected results, such as maximizing event attendance, revenue, or ticket sales. *Id.* col. 6 ll. 12–15. The machine learning model may "be trained to recognize how to optimize, maximize, or minimize one or more of the target features based on a given set of input parameters." *Id.* Eventually, the machine learning model will "generate the optimized schedule[] and provide the schedule . . . as output." *Id.* col. 6 ll. 16–17.

The specification also makes clear that the patented method employs "any suitable machine learning technique[,] . . . such as, for example: a gradient boosted random forest, a regression, a neural network, a decision tree, a support vector machine, a Bayesian network, [or] other type of technique." *Id.* col. 6 ll. 1–5. The schedules are generated "dynamically, in response to real-time changes in data," allowing "input parameters and target features [to] be processed and considered more efficiently and accurately[] compared to prior approaches." *Id.* col. 9 ll. 20–25.

B. The Network Map Patents

The '811 and '957 patents are the Network Map patents. Both are titled "Systems and Methods for Automatically and Dynamically Generating a Network Map." They share a specification and concern the creation of network maps for broadcasters. Claim

1 of the '811 patent is representative of the Network Map patents and recites a method containing: (i) a collecting step (receiving current broadcasting schedules); (ii) an analyzing step (creating a network map); (iii) an updating step (incorporating real-time changes to the data inputs); and (iv) a using step (determining program broadcasts using the optimized network map).[3]

---

[3] Claim 1 of the '811 patent recites:

A computer-implemented method for dynamically generating a network map, the method comprising:

> receiving a schedule for a first plurality of live events scheduled to start at a first time and a second plurality of live events scheduled to start at a second time;
>
> generating, based on the schedule, a network map mapping the first plurality of live events and the second plurality of live events to a plurality of television stations for a plurality of cities,
>
> wherein each station from the plurality of stations corresponds to a respective city from the plurality of cities,
>
> wherein the network map identifies for each station
>
> (i) a first live event from the first plurality of live events that will be displayed at the first time, and
>
> (ii) a second live event from the second plurality of live events that will be displayed at the second time, and
>
> wherein generating the network map comprises using a machine learning technique to optimize an overall television rating across the first plurality of live events and the second plurality of live events;

automatically updating the network map on demand and in real time based on a change to at least one of

> (i) the schedule and (ii) underlying criteria;

The Network Map patents use training data in conjunction with a machine learning model to generate optimized network maps. The training data may include "weather data, news data, and/or gambling data," but is not limited to such categories. *Id.* col. 3 ll. 26–30. In operating the machine learning model, users may input target features to achieve a selected result. For example, in the context of National Football League broadcasts, users may select a target feature that maximizes "overall ratings for the NFL across all games, ratings for the NFL with a particular affiliate (CBS or FOX), ratings for the NFL in a particular market, with a particular audience, or at a particular time." *Id.* col. 3 ll. 12–15. The specification clarifies that the disclosed method uses generic computing equipment in conjunction with "any suitable machine learning technique." *Id.* col. 3 ll. 22–26.

II

On November 29, 2022, Recentive sued Fox, alleging infringement of the four patents. Fox moved to dismiss for failure to state a claim on the ground that the patents are ineligible under § 101.

> wherein updating the network map comprises updating the mapping of the first plurality of live events and the second plurality of live events to the plurality of television stations; and using the network map to determine for each station
>
> (i) the first live event from the first plurality of live events that will be displayed at the first time and
>
> (ii) the second live event from the second plurality of live events that will be displayed at the second time. '811 patent, col. 9 ll. 66–col. 10, ll. 32.

In opposing Fox's motion, Recentive acknowledged that "the concept of preparing network maps[] [had] existed for a long time," and that prior to computers, "networks were preparing these network maps with human beings." Transcript of Motion to Dismiss Hearing at 28:19–29:06, *Recentive Analytics, Inc. v. Fox Corp.*, 692 F. Supp. 3d 438 (D. Del. 2023) (No. 22-cv-1545), ECF No. 39 ("Transcript"). Recentive also recognized that "the patents do not claim the machine learning technique itself," *id.* at 26:14–15, but instead "claim[] the application of the machine learning technique to the specific context[s]" of event scheduling and network map creation, *id.* at 26:15–21.

Recentive asserted that its patents claim eligible subject matter because they involve "the unique application of machine learning to generate customized algorithms, based on training the machine learning model, that can then be used to automatically create . . . event schedules that are updated in real-time." Plaintiff's Opposition to Defendants' Motion to Dismiss at 2, *Recentive Analytics, Inc. v. Fox Corp.*, 692 F. Supp. 3d 438 (D. Del. 2023) (No. 22-cv-1545), ECF No. 20 ("Opposition Br."). According to Recentive, this includes using iterative training for its machine learning model on "different event parameters and . . . event target features" to "identify relationships" within the data. *Id.* at 9 (alteration in original) (quoting '367 patent, col. 14 ll. 21–23).

Recentive acknowledged that "the way machine learning works is the inputs are defined, the model is trained[;] and then the algorithm is actually updated and improved over time based on the input," Transcript at 26:21–24; that "[t]he process of training the machine learning model[] . . . is required for any

machine learning model," Opposition Br. at 16; and that "'using a machine learning technique[]' . . . necessarily includes [an] 'iterative[] training' step," *id.* at 9 (quoting '811 patent, col. 3 ll. 26–28). Recentive characterized its patents as introducing "the application of machine learning models to the unsophisticated, and equally niche, prior art field of generating network maps for broadcasting live events and live event schedules." *Id.* at 1.

The district court granted Fox's motion to dismiss, concluding that the patents were ineligible under the two-step inquiry of *Alice Corporation v. CLS Bank International*, 573 U.S. 208 (2014). The court first found that the asserted claims were "directed to the abstract ideas of producing network maps and event schedules, respectively, using known generic mathematical techniques." *Recentive*, 692 F. Supp. 3d at 451. The court then found at step two of *Alice* that the patents' claims were not directed to an "inventive concept" that would "amount[] to significantly more than a patent upon the [ineligible concept] itself," *id.* at 456 (second alteration in original) (quoting *Alice*, 573 U.S. at 217–18), because the machine learning limitations were no more than "broad, functionally described, well-known techniques" and claimed "only generic and conventional computing devices," *id.* at 457 (footnote omitted). Finally, the district court denied Recentive's request for leave to amend. *See id.* In the district court's view, any amendment to Recentive's complaint would have been futile. *Id.*

Recentive appealed. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).

DISCUSSION

We review challenges to a district court's dismissal of a complaint for failure to state a claim de novo. *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat'l Ass'n*, 776 F.3d 1343, 1346 (Fed. Cir. 2014); *Sands v. McCormick*, 502 F.3d 263, 267 (3d Cir. 2007). We likewise review a district court's determination of patent eligibility under § 101 de novo. *Content Extraction*, 776 F.3d at 1346; *Dealertrack, Inc. v. Huber*, 674 F.3d 1315, 1333 (Fed. Cir. 2012).

An invention is patent eligible if it claims a "new and useful process, machine, manufacture, or composition of matter." 35 U.S.C. § 101. The Supreme Court has interpreted this language to exclude "[l]aws of nature, natural phenomena, and abstract ideas" from patent eligibility. *Alice*, 573 U.S. at 216; *Mayo Collab. Servs. v. Prometheus Lab'ys, Inc.*, 566 U.S. 66, 70 (2012).

Under *Alice*, courts perform a two-step analysis to determine patent eligibility under § 101. "First, we determine whether the claims at issue are directed to one of those patent-ineligible concepts." *Alice*, 573 U.S. at 217. If the claims are directed to a patent-ineligible concept, we assess the "elements of each claim both individually and 'as an ordered combination'" to determine whether they possess an "inventive concept" that is "sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself." *Id.* at 217–18 (alteration in original) (quoting *Mayo*, 566 U.S. at 72).

This case presents a question of first impression: whether claims that do no more than apply established methods of machine learning to a new data environment are patent eligible. We hold that they are not.

I

Under the first step of the *Alice* inquiry, "we 'look 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.'" *Koninklijke KPN N.V. v. Gemalto M2M GmbH*, 942 F.3d 1143, 1149 (Fed. Cir. 2019) (quoting *Affinity Labs of Tex., LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1257 (Fed. Cir. 2016)). In the context of software patents (which includes machine learning patents), the step-one inquiry determines "whether the claims focus on 'the specific asserted improvement in computer capabilities . . . or, instead, on a process that qualifies as an abstract idea for which computers are invoked merely as a tool.'" *Id.* (alteration in original) (quoting *Finjan, Inc. v. Blue Coat Sys., Inc.*, 879 F.3d 1299, 1303 (Fed. Cir. 2018)).

Considering the focus of the disputed claims, *Alice*, 573 U.S. at 217, it is clear that they are directed to ineligible, abstract subject matter. Recentive has repeatedly conceded that it is not claiming machine learning itself. *See* Appellant's Br. 45; Transcript at 26:14–15. Both sets of patents rely on the use of generic machine learning technology in carrying out the claimed methods for generating event schedules and network maps. *See, e.g.*, '367 patent, col. 6 ll. 1–5, col. 11–12; '811 patent, col. 3, l. 23, col. 5 l. 4. The machine learning technology described in the patents is conventional, as the patents' specifications demonstrate. *See, e.g.*, '367 patent, col. 6 ll. 1–5 (requiring

"any suitable machine learning technology . . . such as, for example: a gradient boosted random forest, a regression, a neural network, a decision tree, a support vector machine, a Bayesian network, [or] other type of technique"); '811 patent, col. 3 l. 23 (requiring the application of "any suitable machine learning technique.").[4]

The requirements that the machine learning model be "iteratively trained" or dynamically adjusted in the Machine Learning Training patents do not represent a technological improvement. Recentive's own representations about the nature of machine learning vitiate this argument: Iterative training using selected training material and dynamic adjustments based on real-time changes are incident to the very nature of machine learning. *See, e.g.*, Opposition Br. 9 ("[U]sing a machine learning technique[] . . . necessarily includes [an] iterative[] training step . . . ." (internal quotation marks and citation omitted)); Transcript at 26:21–24 ("[T]he way

[4] The patents additionally employ only generic computing machines and processors. *See, e.g.*, '367 patent, col. 11 ll. 50–62 ("The processes and logic flows described in this specification can be performed by one or more programmable processors executing one or more computer programs to perform actions by operating on input data and generating output . . . . Processors suitable for the execution of a computer program include . . . both general and special purpose microprocessors, and any one or more processors of any kind of digital computer."); '811 patent, col. 5 ll. 4–6 ("FIG. 4 shows an example of a generic computing device 450, which may be used with the techniques described in this disclosure"). As we have explained, "generic steps of implementing and processing calculations with a regular computer do not change the character of [the claim] from an abstract idea into a practical application." *In re Bd. of Trs. of Leland Stanford Junior Univ.*, 991 F.3d 1245, 1250 (Fed. Cir. 2021).

machine learning works is the inputs are defined, the model is trained, and then the algorithm is actually updated and improved over time based on the input").

Recentive argues in its briefs that its application of machine learning is not generic because "Recentive worked out how to make the algorithms function dynamically, so the maps and schedules are automatically customizable and updated with real-time data," Appellant's Reply Br. 2, and because "Recentive's methods unearth 'useful patterns' that had previously been buried in the data, unrecognizable to humans," *id.* (internal citation omitted). But Recentive also admits that the patents do not claim a specific method for "improving the mathematical algorithm or making machine learning better." Oral Arg. at 4:40–4:44.

Even if Recentive had not conceded the lack of a technological improvement, neither the claims nor the specifications describe how such an improvement was accomplished. That is, the claims do not delineate steps through which the machine learning technology achieves an improvement. *See, e.g.*, *IBM v. Zillow Grp., Inc.*, 50 F.4th 1371, 1381 (Fed. Cir. 2022) (holding abstract a claim that "d[id] not sufficiently describe how to achieve [its stated] results in a non-abstract way," because "[s]uch functional claim language, without more, is insufficient for patentability under our law." (quoting *Two-Way Media Ltd v. Comcast Cable Commc'ns, LLC*, 874 F.3d 1329, 1337 (Fed. Cir. 2017))); *see also Intell. Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1342 (Fed. Cir. 2017) (similar); *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1356 (Fed. Cir. 2016) (similar). "[T]he patent system represents

a carefully crafted bargain that encourages both the creation and the public disclosure of new and useful advances in technology, in return for an exclusive monopoly for a limited period of time." *Pfaff v. Wells Elecs.*, 525 U.S. 55, 63 (1998); *Sanho Corp. v. Kaijet Tech. Int'l Ltd.*, 108 F.4th 1376, 1382 (Fed. Cir. 2024). Allowing a claim that functionally describes a mere concept without disclosing how to implement that concept risks defeating the very purpose of the patent system. In this respect, the patents' claims are materially different from those in *McRO, Inc. v. Bandai Namco Games America Inc.*, 837 F.3d 1299 (Fed. Cir. 2016), and *Koninklijke*, the cases on which Recentive relies.

Instead of disclosing "a specific implementation of a solution to a problem in the software arts," *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1339 (Fed. Cir. 2016), or "a specific means or method that solves a problem in an existing technological process," *Koninklijke*, 942 F.3d at 1150, the only thing the claims disclose about the use of machine learning is that machine learning is used in a new environment. This new environment is event scheduling and the creation of network maps.

As Recentive acknowledges, before the introduction of machine learning, event planners looked to what the Machine Learning Training patents describe as "event parameters" such as prior ticket sales, weather forecasts, and other data to determine when and where to schedule a particular event or series of events. *See* Appellant's Br. 4 (describing prior methods as "entirely manual, static[,] and incapable of responding to changing conditions" (quoting '811 patent, col. 1 l. 25)). The patents recognize this. *See, e.g.*, '367 patent, col. 1 ll. 13–26. The same goes for

the creation of network maps, which have been "manual[ly]" created by humans to determine "which content will be displayed on which channel at a certain time." '811 patent, col. 1 ll. 16–17, 25.

We see no merit to Recentive's argument that its patents are eligible because they apply machine learning to this new field of use. We have long recognized that "[a]n abstract idea does not become nonabstract by limiting the invention to a particular field of use or technological environment." *Intell. Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1366 (Fed. Cir. 2015); *see also Alice*, 573 U.S. at 222; *Parker v. Flook*, 437 U.S. 584, 593 (1978); *Stanford*, 989 F.3d at 1373 (rejecting argument that a claim was not abstract where patentee contended "the specific application of the steps [was] novel and enable[d] scientists to ascertain more haplotype information than was previously possible").

We have also held the application of existing technology to a novel database does not create patent eligibility. *See, e.g.*, *SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1168 (Fed. Cir. 2018); *Elec. Power*, 830 F.3d at 1353 ("[W]e have treated collecting information, including when limited to particular content (which does not change its character as information), as within the realm of abstract ideas." (citing *Internet Pats. Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1349 (Fed. Cir. 2015); *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015); *Content Extraction*, 776 F.3d at 1347; *Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344, 1351 (Fed. Cir. 2014); *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1370 (Fed. Cir. 2011))). Stated differently, patents may be directed to abstract ideas where they disclose the use

of an "already available [technology], with [its] already available basic functions, to use as [a] tool[] in executing the claimed process." *SAP Am.*, 898 F.3d at 1169–70. We think those cases are equally applicable in the machine learning context. Recentive's argument that its patents are eligible simply because they introduce machine learning techniques to the fields of event planning and creating network maps directly conflicts with our § 101 jurisprudence.

Finally, the claimed methods are not rendered patent eligible by the fact that (using existing machine learning technology) they perform a task previously undertaken by humans with greater speed and efficiency than could previously be achieved. We have consistently held, in the context of computer-assisted methods, that such claims are not made patent eligible under § 101 simply because they speed up human activity. *See, e.g.*, *Content Extraction*, 776 F.3d at 1347; *DealerTrack*, 674 F.3d at 1333. Whether the issue is raised at step one or step two, the increased speed and efficiency resulting from use of computers (with no improved computer techniques) do not themselves create eligibility. *See, e.g.*, *Trinity Info Media, LLC v. Covalent, Inc.*, 72 F.4th 1355, 1363 (Fed. Cir. 2023) (rejecting argument that "humans could not mentally engage in the 'same claimed process' because they could not perform 'nanosecond comparisons' and aggregate 'result values with huge numbers of polls and members'") (internal citation omitted); *Customedia Techs., LLC v. Dish Network Corp.*, 951 F.3d 1359, 1365 (Fed. Cir. 2020) (holding claims abstract where "[t]he only improvements identified in the specification are generic speed and efficiency improvements inherent in applying the use of a computer to any task"); *compare McRo*, 837 F.3d at 1314–16 (finding eligibil-

ity of claims to use specific computer techniques different from those humans use on their own to produce natural-seeming lip motion for speech).

The district court correctly concluded that the Machine Learning Training and Network Map patents are directed to abstract ideas at step one of *Alice*.

II

At *Alice* step two, we "consider the elements of [the] 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." 573 U.S. at 217 (quoting *Mayo*, 566 U.S. at 79). Transforming the nature of a claim "into a patent-eligible application requires more than simply stating the abstract idea while adding the words 'apply it.'" *Trinity*, 72 F.4th at 1365 (quoting *Alice*, 573 U.S. at 221); *see also SAP Am.*, 898 F.3d at 1167. "[T]he claim must include 'an inventive concept sufficient to transform the claimed abstract idea into a patent-eligible application.'" *Trinity*, 72 F.4th at 1365 (quoting *Alice*, 573 U.S. at 221); *Broadband iTV, Inc. v. Amazon.Com, Inc.*, 113 F.4th 1359, 1370 (Fed. Cir. 2024) ("[W]e must determine whether the claims include 'an element or combination of elements' that transforms the claims into something 'significantly more' than a claim on the patent-ineligible concept itself." (quoting *Alice*, 573 U.S. at 217–18)).

Recentive claims that the inventive concept in its patents is "using machine learning to dynamically generate optimized maps and schedules based on real-time data and update them based on changing conditions." Appellant's Br. 44. As the district court correctly recognized, *see Recentive*, 692 F. Supp. 3d at

456, this is no more than claiming the abstract idea itself. Such a position plainly fails to identify anything in the claims that would "'transform' the claimed abstract idea into a patent-eligible application." *Alice*, 573 U.S. at 221 (quoting *Mayo*, 566 U.S. at 71).

In short, we perceive nothing in the claims, whether considered individually or in their ordered combination, that would transform the Machine Learning Training and Network Map patents into something "significantly more" than the abstract idea of generating event schedules and network maps through the application of machine learning. *See SAP Am.*, 898 F.3d at 1169–70; *Broadband iTV*, 113 F.4th at 1372. Recentive has also failed to identify any allegation in its complaint that would suffice to plausibly allege an inventive concept to defeat Fox's motion to dismiss. *Trinity*, 72 F.4th at 1365.

The district court did not err in concluding that Recentive's claims fail to satisfy step two of the *Alice* inquiry.

III

We additionally reject Recentive's argument that the district court should have granted it leave to amend, a determination that is committed to the sound discretion of the district court. *See Celgene Corp. v. Mylan Pharms., Inc.*, 17 F.4th 1111, 1130 (Fed. Cir. 2021); *In re Allergan ERISA Litig.*, 975 F.3d 348, 356 n.13 (3d Cir. 2020). Here, the court determined further amendment would be futile. *See Recentive*, 692 F. Supp. 3d at 457. Recentive failed to propose any amendments or identify any factual issues that would alter the § 101 analysis. In light of this failure and our holding with respect to the

ineligibility of Recentive's patents, we discern no error in the district court's conclusion.[5]

CONCLUSION

Machine learning is a burgeoning and increasingly important field and may lead to patent-eligible improvements in technology. Today, we hold only that patents that do no more than claim the application of generic machine learning to new data environments, without disclosing improvements to the machine learning models to be applied, are patent ineligible under § 101.

AFFIRMED

[5] Recentive additionally suggests that the district court erred by resolving claim-construction disputes at the pleading stage. We are not convinced. The district court correctly recognized that "[d]ismissal is appropriate" where, as here, "a plaintiff has failed to identify claim terms requiring a construction that could affect the patent-ineligibility analysis." *Recentive*, 692 F. Supp. 3d at 448; *Trinity*, 72 F.4th at 1360–61 ("[A] patentee must propose a specific claim construction or identify specific facts that need development and explain why those circumstances must be resolved before the scope of the claims can be understood for § 101 purposes.").

APPENDIX B

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

Civil Action No. 22-1545-GBW

RECENTIVE ANALYTICS, INC.

Plaintiff,

v.

FOX CORPORATION, a Delaware Corporation; FOX BROADCASTING COMPANY, LLC, a Delaware limited liability company; FOX SPORTS PRODUCTIONS, LLC, a Delaware limited liability company,

Defendants.

John W. Shaw, Karen E. Keller, Nathan R. Hoeschen, SHAW KELLER LLP, Wilmington, Delaware; Robert Frederickson III, GOODWIN PROCTER LLP, Boston, Massachusetts; Alexandra D. Valenti, Jenevieve N. Nutovits, GOODWIN PROCTER LLP, New York, New York; Alison Siedor, GOODWIN PROCTER LLP, Washington, DC

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Counsel for Defendants

MEMORANDUM OPINION

September 19, 2023
Wilmington, Delaware

/s/ GREGORY B. WILLIAMS
GREGORY B. WILLIAMS
UNITED STATES DISTRICT JUDGE

Plaintiff Recentive Analytics, Inc. ("Recentive") alleges that certain products of Defendants Fox Corporation, Fox Broadcasting Company, and Fox Sports Productions (together, "Fox") infringe United States Patent Nos. 10,911,811 ("the '811 patent"), 10,958,957 ("the '957 patent"), 11,386,367 ("the '367 patent") and 11,537,960 ("the '960 patent") (collectively, "the patents-in-suit").[1] D.I. 13 ¶¶ 13-16. Fox moves to dismiss Recentive's First Amended Complaint ("FAC") pursuant to Federal Rule of Civil Procedure 12(b)(6) for failure to state a claim upon which relief can be granted. D.I. 19 (the "Motion"). Fox argues that the claims of the patents-in-suit do not claim patent-eligible subject matter under 35 U.S.C. § 101. *Id.* The Court heard oral argument on Fox's motion on September 7, 2023. D.I. 33. For the reasons stated below, the Court grants Fox's Motion.

I. BACKGROUND

The '811 patent is entitled "Systems and Methods for Automatically and Dynamically Generating a Network Map." The '957 patent is a continuation of the '811 patent and shares the same title and specification. These two patents (collectively, the "Net-

[1] The patents-in-suit were attached to Recentive's First Amended Complaint as Exhibits A-D. *See* D.I. 13, Exs. A-D. For clarity, the Court will cite to the relevant patent-in-suit rather than the exhibit.

work Map Patents") are directed to methods for generating network maps (effectively, television schedules). Prior to the Network Map Patents, Recentive alleges that conventional techniques were "static and incapable of responding to changing conditions." '811 patent at 1:24-29. Furthermore, conventional network mapping processes were "unable to prioritize certain parameters or target criteria in the creation of event schedules, could not be iteratively trained, and were not capable of collecting analyzing social media data to forecast the impact on the future series of live events." D.I. 13 The patented process improves on the prior art by allowing dynamic updating of the network map based on changing conditions and optimizing the scheduling process using machine learn techniques. '811 patent at 1:35-47; *Id.* at claim 1.

Claim 1 of the '811 patent recites:

> A computer-implemented method for dynamically generating a network map, the method comprising:
>
> > receiving a schedule for a first plurality of live events scheduled to start at a first time and a second plurality of live events scheduled to start at a second time;
> >
> > generating, based on the schedule, a network map mapping the first plurality of live events and the second plurality of live events to a plurality of television stations for a plurality of cities,
> >
> > > wherein each station from the plurality of stations corresponds to a respective city from the plurality of cities,

wherein the network map identifies for each station (i) a first live event from the first plurality of live events that will be displayed at the first time and (ii) a second live event from the second plurality of live events that will be displayed at the second time, and

wherein generating the network map comprises using a machine learning technique to optimize an overall television rating across the first plurality of live events and the second plurality of live events;

automatically updating the network map on demand and in real time based on a change to at least one of (i) the schedule and (ii) underlying criteria,

wherein updating the network map comprises updating the mapping of the first plurality of live events and the second plurality of live events to the plurality of television stations; and

using the network map to determine for each station (i) the first live event from the first plurality of live events that will be displayed at the first time and (ii) the second live event from the second plurality of live events that will be displayed at the second time.

See '811 patent at claim 1.

Claim 12 of the '811 patent is nearly identical to claim 1, adding only the limitation "one or more computer processors programmed to perform operations comprising." *Id.* at claim 12. The '957 patent is nearly identical, except that rather than being directed to "live events," it is directed to "events." *See* D.I. 19, Ex.

B (a comparison of the independent claims of the '811 patent with the '957 patent). Both Network Map Patents recite a computer-implemented method of receiving a schedule of events in two 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 Network Map Patents do not disclose a particular computer system to perform the method, but rather a "generic computing device." *See, e.g.,* '811 patent at 5:4; '957 patent at 5:15. Similarly, they do not provide any details of the machine learning algorithms, but merely recite that "any suitable machine learning technique can be used." *See, e.g.,* '811 patent at 3:23; '957 patent at 3:34.

The '367 and '960 patents (collectively, the "Machine Learning Training Patents") share a specification and a title ("Systems and Methods for Determining Event Schedules"). The Machine Learning Training Patents are directed to optimizing event schedules and improve over the prior art by considering "competing events, expenses, ticket prices, weather, performer availability, venue availability, etc." '367 patent at 1:26-33. The Machine Learning Training Patents claim to solve this problem by generating a schedule through a machine learning model, which has been trained to optimize target features based on input parameters. *Id.* at 2:18-20. This model has been iteratively trained to recognize how to optimize the target features. *Id.* at claim 1. The schedule can be dynamically updated. *Id.* at 1:63-67. Claim 1 of the '367 patent recites:

A computer-implemented method of dynamically generating an event schedule, the method comprising:

receiving one or more event parameters for series of live events, wherein the one or more event parameters comprise at least one of venue availability, venue locations, proposed ticket prices, performer fees, venue fees, scheduled performances by one or more performers, or any combination thereof;

receiving one or more event target features associated with the series of live events, wherein the one or more event target features comprise at least one of event attendance, event profit, event revenue, event expenses, or any combination thereof;

providing the one or more event parameters and the one or more event target features to a machine learning (ML) model, wherein the ML model is at least one of a neural network ML model and a support vector ML model;

iteratively training the ML model to identify relationships between different event parameters and the one or more event target features using historical data corresponding to one or more previous series of live events, wherein such iterative training improves the accuracy of the ML model;

receiving, from a user, one or more user-specific event parameters for a future series of live events to be held in a plurality of geographic regions;

> receiving, from the user, one or more user-specific event weights representing one or more prioritized event target features associated with the future series of live events;
>
> providing the one or more user-specific event parameters and the one or more user-specific event weights to the trained ML model;
>
> generating, via the trained ML model, a schedule for the future series of live events that is optimized relative to the one or more prioritized event target features;
>
> detecting a real-time change to the one or more user-specific event parameters;
>
> providing the real-time change to the trained ML model to improve the accuracy of the trained ML model; and
>
> updating, via the trained ML model, the schedule for the future series of live events such that the schedule remains optimized relative to the one or more prioritized event target features in view of the real-time change to the one or more user-specific event parameters.

See '367 patent at claim 1.

Claim 9 of the '367 patent is very similar to claim 1, just adding the limitation "one or more computer systems programmed to perform operations comprising." *Id.* at claim 9. Claims 11 and 19, instead of dealing with a "series of live events," involve "live events comprising performances by a plurality of performers." *Id.* at claims 11; 19. The '960 patent is nearly identical, except that instead of being directed to a "plurality of geographic locations" it is directed to

"a plurality of performers" at a single venue. *See* '960 at claim 1.

II. LEGAL STANDARDS

a. Motion to Dismiss

To state a claim on which relief can be granted, a complaint must contain "a short and plain statement of the claim showing that the pleader is entitled to relief . . . ." Fed. R. Civ. P. 8(a)(2). Such a claim must plausibly suggest "facts sufficient to 'draw the reasonable inference that the defendant is liable for the misconduct alleged.'" *Doe v. Princeton Univ.,* 30 F.4th 335, 342 (3d Cir. 2022) (quoting *Ashcroft v. Iqbal,* 556 U.S. 662, 678 (2009)) (citing *Bell Atl. Corp. v. Twombly,* 550 U.S. 544, 557 (2007)). "A claim is facially plausible 'when the plaintiff pleads factual content that allows the court to draw the reasonable inference that the defendant is liable for the misconduct alleged.'" *Klotz v. Celentano Stadtmauer & Walentowicz LLP,* 991 F.3d 458, 462 (3d Cir. 2021) (quoting *Iqbal,* 556 U.S. at 678). But the Court will "'disregard legal conclusions and recitals of the elements of a cause of action supported by mere conclusory statements.'" *Princeton Univ.,* 30 F.4th at 342 (quoting *Davis v. Wells Fargo,* 824 F.3d 333, 341 (3d Cir. 2016)). Under Rule 12(b)(6), the Court must accept as true all factual allegations in the complaint and view those facts in the light most favorable to the plaintiff. *See Fed Trade Comm'n v. AbbVie Inc,* 976 F.3d 327, 351 (3d Cir. 2020).

b. Patent-Eligible Subject Matter

Patentability under 35 U.S.C. § 101 is a threshold legal issue. *Bilski v. Kappos,* 561 U.S. 593, 602 (2010). The § 101 inquiry is properly raised at the pleading stage if it is apparent from the face of the

patent that the asserted claims are not directed to eligible subject matter. *Cleveland Clinic Found. v. True Health Diagnostics LLC,* 859 F.3d 1352, 1360 (Fed, Cir. 2017), *cert. denied,* 138 S. Ct. 2621 (2018); *see also SAP Am., Inc. v. InvestPic, LLC,* 898 F.3d 1161, 1166 (Fed. Cir. 2018) (stating that patent eligibility "may be, and frequently has been, resolved on a Rule 12(b)(6) or (c) motion"); *Fair Warning IP, LLC v. Iatric Sys., Inc.,* 839 F.3d 1089, 1097 (Fed. Cir. 2016) (stating that "it is possible and proper to determine patent eligibility under 35 U.S.C. § 101 on a Rule 12(b)(6) motion" (quoting *Genetic Techs. Ltd. v. Merial L.L.C.,* 818 F.3d 1369, 1373-74 (Fed. Cir. 2016)); *Voter Verified, Inc. v. Election Sys. & Software LLC,* 887 F.3d 1376, 1379 (Fed. Cir. 2018) (affirming Rule 12(b)(6) dismissal based on § 101 patent ineligibility). This is, however, appropriate "only when there are no factual allegations that, taken as true, prevent resolving the eligibility question as a matter of law." *Aatrix Software, Inc. v. Green Shades Software, Inc.,* 882 F.3d 1121, 1128 (Fed. Cir. 2018).

Section 101 of the Patent Act defines patent-eligible subject matter. It states, "[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title." 35 U.S.C. § 101. The Supreme Court has held that there are exceptions to § 101. "Laws of nature, natural phenomena, and abstract ideas are not patentable." *Alice Corp. Pty. v. CLS Bank Int'l*, 573 U.S. 208, 216 (2014) (internal quotation marks and citation omitted). "[l]n applying the § 101 exception, [the court] must distinguish between patents that claim the 'building blocks' of human ingenuity and those that integrate the building

blocks into something more[] thereby 'transforming' them into a patent-eligible invention. The former 'would risk disproportionately tying up the use of the underlying' ideas and are therefore ineligible for patent protection. The latter pose no comparable risk of pre-emption, and therefore remain eligible for the monopoly granted under our patent laws." *Id.* at 217 (cleaned up).

The Supreme Court's *Alice* decision established a two-step framework for determining patent-eligibility under § 101. In the first step, the court must determine whether the claims at issue are directed to a patent-ineligible concept. *Id.* In other words, are the claims directed to a law of nature, natural phenomenon, or abstract idea? *Id.* If the answer to the question is "no," then the patent is not invalid for teaching ineligible subject matter under § 101. If the answer to the question is "yes," then the court proceeds to step two, where it considers "the elements of each claim both individually and as an ordered combination" to determine if there is an "inventive concept—i.e., an element or combination of elements that is sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself." *Id.* at 217-18 (alteration in original). "A claim that recites an abstract idea must include 'additional features' to ensure that the [claim] is more than a drafting effort designed to monopolize the [abstract *idea]." Id.* at 221 (internal quotation marks and citation omitted). Further, "the prohibition against patenting abstract ideas cannot be circumvented by attempting to limit the use of [the idea] to a particular technological environment." *Id.* at 222 (quoting *Bilski,* 561 U.S. at 610-11). Thus, "the mere recitation of a generic computer cannot trans-

form a patent-ineligible abstract idea into a patent-eligible invention." *Id.* at 223.

III. DISCUSSION

a. Claim Construction and Factual Disputes

Recentive asserts that "resolution of this issue before claim construction and expert discovery is premature." D.I. 20 at 2. Fox replies that Recentive did not provide its own claim construction, nor explain why any claim construction would render the claims eligible for patent protection. D.I. 23 at 1.

The § 101 eligibility inquiry is a matter of law for the Court to determine. *See Bilski,* 561 U.S. at 602. "At the pleading stage, to the extent the § 101 question of law is informed by subsidiary factual issues, those facts are to be construed in the light most favorable to Plaintiff." *Two-Way Media Ltd. v. Comcast Cable Commc 'ns, LLC,* C.A. No. 14-1006-RGA, 2016 WL 4373698, at *3 (D. Del. Aug. 15, 2016), *aff'd,* 874 F.3d 1329 (Fed. Cir. 2017) (citations omitted). The Court need not undergo claim construction before performing a § 101 analysis. *Int'l Bus. Machines Corp. v. Zynga Inc.,* C.A. No. 22-590-GBW, 2022 WL 17177735, at *4 (D. Del. Nov. 23, 2022) ("There is no bright-line rule that a court must construe terms in the asserted patent before it performs a § 101 analysis.") (citing *Bancorp Servs., L.L.C. v. Sun Life Assur. Co. of Canada (U.S.),* 687 F.3d 1266, 1273-74 (Fed. Cir. 2012)). Dismissal is appropriate when a plaintiff has failed to identify claim terms requiring a construction that could affect the patent-ineligibility analysis. *Cleveland Clinic Found. v. True Health Diagnostics LLC,* 859 F.3d 1352, 1360 (Fed. Cir. 2017) ("[I]t was appropriate for the district court to determine that the [asserted] patents were inel-

igible under § 101 at the motion to dismiss stage" when the patentee "provided no proposed construction of any terms or proposed expert testimony that would change the § 101 analysis").

The Court agrees with Fox that Recentive has not provided any proposed claim construction or an explanation of why any proposed claim construction would alter the § 101 analysis.[2] Thus, the Court continues to the § 101 analysis undeterred.

Recentive also argues that factual disputes prevent resolution of the § 101 dispute at the pleadings stage. D.I. 20 at 9-10. The first factual dispute Recentive raises stems from Recentive's assertion in its FAC that machine learning techniques "do not mimic mental processes, but are separate structures or architectures that receive, process, and generate data in a unique manner." *Id.* at 10 (citing D.I. 13 ¶¶ 29, 34). In its Motion, Fox argues that "contrary to Recentive's assertions, however, these limitations simply reflect manipulating and organizing data using known mathematical techniques." D.I. 19 at 12. Recentive responds that Fox's argument constitutes a factual contradiction with Recentive's statement in its FAC, thereby requiring denial of Fox's Motion. D.I. 20 at 9.

At the outset, the Court notes that Recentive's assertions that the patents-in-suit do not mimic mental processes and that machine learning techniques

[2] During oral argument, Recentive claimed that their briefing included a claim construction for the term "generating" that incorporated the display limitations removed during prosecution. September 7 Hearing Rough Transcript at 37. The Court disagrees. Even if it did provide a construction, Recentive has not provided any explanation for how this construction would change the § 101 analysis.

are unique are the sorts of "mere conclusory statements" that a Court may disregard at the 12(b)(6) stage. *Doe,* 30 F.4th at 342. Furthermore, these statements do not necessarily contradict. It can be true that machine learning techniques generate data in a manner distinct from the human mind, while still being true that machine learning algorithms use known mathematical techniques to do so. Thus, in addition to being mere conclusory statements, there is no factual contradiction here that would prevent the Court from reaching the § 101 analysis. To the extent that Fox is arguing that machine learning does not have separate structures that process data in a manner different from the human mind, the Court draws all assumptions in favor of Recentive at this stage.

The second factual dispute that Recentive identifies is with respect to Fox's argument that machine learning techniques are generic. Recentive argues that the patents' recitation of "iteratively training" the machine learning models constitutes a factual allegation that requires resolution. D.I. 20 at 9. Again the Court does not find any factual dispute that would preclude the Court from reaching the § 101 analysis: iterative training can itself be a generic part of machine learning, a generic technique. *See* September 7 Hearing Rough Transcript at 41 ("[W]hat's described is iteratively training the machine learning model to identify relationships, and then generating via the trained ML model a schedule. What's being described here is what machine learning models do.").

Lastly, Recentive argues dismissal is inappropriate because of allegations in its FAC that the amount of data to be collected would make it "impossible for a

human to produce near-simultaneous updates to network maps," that machine learning produces "a better result than what a human could perform alone" and that machine leaning provides a "better and more optimized event schedule than what a human could achieve without the claimed techniques." D.I. 13 at 20, 22, 33. Recentive argues this contradicts Fox's assertions that the patents-in-suit are directed toward the "automation of an entirely manual process." D.I. 20 at 10. The Court accepts Recentive's factual allegations as true at this stage but ultimately finds they do not change the analysis.

b. Patent Office Guidance

The parties dispute the relevance of the United States Patent and Trademark Office's ("PTO") guidance to the pending § 101 analysis. Recentive identifies the PTO's Subject Matter Eligibility Example 39 "Method for Training a Neural Network for Facial Detection" as evidence that the patents-in-suit claim patent-eligible subject matter and urges the Court not to "upend" this guidance. D.I. 20 at 18. Fox urges the Court to ignore the guidance, asserting that the Court need not defer to the PTO. D.I. 23 at 4 (citing *Fitbit Inc. v. AliphCom,* C.A. No. 16-118, 2017 WL 819235, at *18 (N.D. Cal. Mar. 2, 2017) (courts "need not defer to the examiner's conclusions on patent eligibility" in determining eligibility)).

PTO guidance "is not, itself, the law of patent eligibility, does not carry the force of law, and is not binding on our patent eligibility analysis." *In re Rudy,* 956 F.3d 1379, 1382 (Fed. Cir. 2020). "While we greatly respect the PTO's expertise on all matters relating to patentability, including patent eligibility, we are not bound by its guidance." *Cleveland Clinic Found. v. True Health Diagnostics LLC,* 760 F. App'x

1013, 1020 (Fed. Cir. 2019). Indeed, courts in this District have previously confronted the PTO's examples and declined to defer to their findings or conclusions. *See, e.g., Citrix Sys., Inc. v. Avi Networks, Inc.,* 363 F. Supp. 3d 511, 516 n.2 (D. Del. 2019) (acknowledging the similarity of the case to a PTO example but coming out the other way).

While the Court is not required to defer to Example 39 or the PTO's guidance, the Court has closely reviewed Example 39 and concludes that the present analysis does not conflict with Example 39, despite Recentive's cursory analogies. Example 39 relates to a neural network training patent and describes a set of novel methods to improve prior art neural networks—e.g., an expanded training set using mathematical transformations and the minimization of false positives using a distinctive training method. D.I. 21, Ex. D at 8-9. The patents-in-suit, unlike Example 39, do not involve improving a prior art machine learning technique but, rather, only relate to the application of machine learning techniques to a manual process. *Compare id.* at 8 (claiming the use of an expanded training set and a novel training method) *with* '811 patent at 3:21-30 (noting that "any suitable machine learning technique can be used") *and* '367 patent at claim 1 (describing only the use of either a support vector model or a neural network, with no further detail). As such, the PTO's guidance that "[w]hile some of the limitations may be based on mathematical concepts, the mathematical concepts are not recited in the claims" is not relevant here—Recentive recites those very mathematical concepts in its claims (by stating to apply generic machine learning techniques to a pre-existing process). D.I. 21, Ex. D at 9; *see* '811 patent at claim 1; '367 patent at claim 1. In short, the patents-in-suit are not

directly analogous to Example 39. Thus, the PTO guidance is not relevant to the Court's § 101 analysis of the patents-in-suit.

c. Representativeness

The parties dispute whether Fox has proven representativeness. The Court finds that it has. Courts may treat a claim as representative if all the claims are "substantially similar and linked to the same abstract idea." *Content Extraction & Transmission LLC v. Wells Fargo Bank Nat. Ass'n*, 776 F.3d 1343, 1348 (Fed. Cir. 2014). "Courts may [also] treat a claim as representative in certain situations, such as if the patentee does not present any meaningful argument for the distinctive significance of any claim limitations not found in the representative claim or if the parties agree to treat a claim as representative." *Berkheimer v. HP Inc.,* 881 F.3d 1360, 1365 (Fed. Cir. 2018). Courts will find a claim representative if "all of the challenged claims relate to the same abstract idea" and none of the other "claims add one or more inventive concepts that would result in patent eligibility." *Cronos Techs., LLC v. Expedia, Inc.,* C.A. No. 13-1538-LPS, 2015 WL 5234040, at *2 (D. Del. Sept. 8, 2015). Courts have declined to rule on a § 101 motion to dismiss when the accused infringer failed to meet its burden to show that its choice of representative claim is proper. *Id.* at *3-4.

Fox asserts that claim 1 of the '811 patent is representative of the Network Map Patents. D.I. 19 at 3. Claim 1 of the '811 patent recites generating a network map by "receiving" a schedule of events, "generating" a network map divided by cities, wherein "generating the network map comprises using a machine learning technique to optimize an overall

television rating," "automatically updating" the network map based on demand in real time, and "using the network map" to determine for each station the schedule. *See* '811 patent at claim 1. In its briefing, Fox explains why each of the other claims in the Network Map Patents are directed to the same abstract idea recited in claim 1, and why these other claims contain no inventive step. D.I. 19 at 2-4, 18-20. For example, Fox argues that claim 6 of the '811 patent (requiring generating the network map based on weather, news, or gambling data) fails because "collecting and analyzing specific types of information from specific types of information sources (including real time measurements) . . . does nothing significant to differentiate a process from ordinary mental processes." D.I. 19 at 18-19 (quoting *Power Analytics Corporation v. Operation Technology, Inc.,* C.A. No. 16-1955, 2017 WL 5468179, at *5 (C.D. Cal. July 13, 2017)).

Recentive briefly criticizes Fox's efforts to prove representativeness, stating that Fox "glosses over the dependent claims and provides only rote explanations . . . ." D.I. 20 at 19. Other than dependent claim 10 of the '811 patent, Recentive has not provided a meaningful argument as to any other claim and, thus, has "waived any argument that those claims should be analyzed separately." *Affinity Labs of Texas, LLC v. DIRECTV, LLC,* 838 F.3d 1253, 1264 n.4 (Fed. Cir. 2016).

Dependent claim 10 of the '811 patent recites "[t]he method of claim 1, wherein the automatically updating step comprises generating multiple network maps based on multiple user entered changes." '811 patent at claim 10. Recentive notes that, "rather than generating a single map," the process claimed in

dependent claim 10 generates "an extensive repository of maps" which is "simultaneously generated based on multiple input changes." D.I. 20 at 20.[3] This, Recentive argues, is sufficient to confer patent eligibility. Fox responds that precedent dictates that "analyzing multiple inputs, 'including real time measurements,' does nothing significant to differentiate a process from ordinary mental processes.'" D.I. 23 at 10 (quoting *Power Analytics,* 2017 WL 5468179, at *5). Claim 10 has two limitations: generating multiple maps, and generating those multiple maps based on multiple input changes. Neither of these limitations meaningfully alters the Court's § 101 analysis. Creating several network maps is substantially similar to creating one network map—if the latter is abstract, so is the former. Similarly, generating maps using input changes is not meaningfully different from the process in claim 1 of the '811 patent. Therefore, the Court concludes that claim 1 of the '811 patent is representative of the Network Map Patents.

Fox asserts that claim 1 of the '367 patent is representative of the Machine Learning Training patents. D.I. 19 at 5. Recentive does not dispute this beyond the broad allegation that Fox glossed over the dependent claims. D.I. 20 at 19. As such, Recentive has waived any argument that claim 1 of the '367 patent does not represent the Machine Learning Training Patents and the Court finds that claim 1 of the '367 patent is representative.

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[3] The Court notes it is highly dubious whether merely repeating the language of the dependent claim and asserting it is not representative constitutes a "meaningful argument for the distinctive significance of any claim limitations." *Berkheimer,* 881 F.3d at 1365.

d. Patent-eligible Subject Matter

i. *Alice* Step 1

The Court must first determine whether claim 1 of the '811 patent (and, thus, the Network Map Patents which it represents) and claim 1 of the '367 patent (and, thus, the Machine Learning Training Patents which it represents) are directed to abstract ideas. For the reasons stated below, the Court fords that the Network Map Patents and the Machine Learning Training Patents are directed to the abstract ideas of producing network maps and event schedules, respectively, using known generic mathematical techniques.

Recentive claims that the "central inventive contribution" of the Network Map Patents that renders the claims patent-eligible is the "application of trained machine learning algorithms to generate network maps that are dynamically updated and optimized in real-time." *Id.* at 8. Recentive claims that the central inventive concept for the Machine Learning Training Patents is using those machine learning algorithms to generate "event schedules that are dynamically updated and optimized in real-time." *Id.* at 8-9. Both Recentive and Fox largely treat the two sets of patents together. *E.g.,* D.I. 19 at 16-17; D.I. 20 at 9-10. The Court will do the same.

The Supreme Court and the Federal Circuit have provided some guideposts as to what constitutes an "abstract idea." For example, claims that recite "`method[s] of organizing human activity' are not patent-eligible because they are abstract ideas." *Smartflash LLC v. Apple Inc.,* 680 F. App'x 977, 982 (Fed. Cir. 2017) (quoting *Alice,* 573 U.S. 208 at 220). "[A] process that employs mathematical algorithms to

manipulate existing information to generate additional information" is an abstract idea. *Digitech Image Techs. LLC v. Elecs. for Imaging, Inc.,* 758 F.3d 1344, 1351 (Fed. Cir. 2014); *see also Elec. Power Grp. LLC v. Alstom S.A.,* 830 F.3d 1350, 1353 (Fed. Cir. 2016) ("[C]ollecting information, analyzing it, and displaying certain results of the collection and analysis" is a "familiar class of claims directed to a patent-ineligible concept"). Claims that are "'directed to an improvement to computer functionality' are not abstract, while claims "'simply adding conventional computer components to well-known business practices' are abstract. *In re TLI Commc'ns LLC Patent Litig.,* 823 F.3d 607, 612 (Fed. Cir. 2016) (quoting *Enfish,* 822 F.3d at 1335-38). In deciding questions of patent eligibility and, specifically, in navigating the parameters of an abstract idea, it is proper for courts to compare the claims at issue to those previously analyzed in other judicial decisions. *See, e.g., Elec. Power Grp.,* 830 F.3d at 1351-54; *see also Enfish,* 822 F.3d at 1334 (allowing courts to "compare claims at issue to those claims already found to be directed to an abstract idea in previous cases").

The Court finds that claim 1 of the '811 patent recites four steps: (1) a collecting step, i.e., receiving current 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 that network map to determine for each station which event will be shown.

The Court finds that claim 1 of the '367 patent also recites four steps: (1) a collecting step, i.e., receiving event parameters (e.g., venue locations, fees) and target features (e.g., event revenue); (2) a training

step, i.e., feeding this 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.

Both the Network Map Patents and the Machine Learning Training Patents "collect[] information, analyz[e] it, and display[] certain results of the collection," a "familiar class of claims directed to a patent-ineligible concept." *Elec. Power Grp., LLC,* 830 F.3d at 1353. Recentive makes three arguments to differentiate the patents-in-suit from those patents previously found to claim patent-ineligible subject matter. First, Recentive argues that machine learning algorithms are unique since they process information differently from how the human brain could or would. Second, Recentive argues that humans could not perform the patented processes, because the data and algorithms are too complex. Third, Recentive analogizes to the Federal Circuit decision in *McRO, Inc. v. Bandai Namco Games Am. Inc.,* 837 F.3d 1299 (Fed. Cir. 2016), wherein the patents-in-suit were directed to a concrete application of mathematical rules, not the rules themselves. Each of these arguments fails.

Recentive contends that machine learning algorithms process information differently from the human brain, in that "humans process data qualitatively, rather than quantitatively."[4] D.I. 20 at 12. It notes

[4] The Court also notes this is ad hoc attorney argument, and not in the specification of the patents or the complaint.

that machine learning can identify patterns and details imperceptible to humans, and thereby optimizes maps in a different way than the human brain would or could. *Id.* However, this argument misses the point. It is irrelevant whether a human making a network map would run a support vector machine in their brain. The relevant question is whether the machine learning processes are mathematical algorithms. "[Courts] have treated analyzing information by steps people go through in their minds, *or by mathematical algorithms,* without more, as essentially mental processes within the abstract-idea category." *Elec Power Grp.,* 830 F.3d at 1354 (emphasis added). Because machine learning is algorithmic in nature, the Court finds that the patents-in-suit are directed to an abstract idea.

Recentive next argues that the patents are eligible because the claimed processes require too much data and computing power for the human brain to do. D.I. 20 at 12 ("[T]he number of possible solutions is far beyond what a human could process."). Recentive cites *SRI Int'l, Inc. v. Cisco Systems, Inc.,* 930 F.3d 1295, 1304 (Fed. Cir. 2019) for the proposition that when the "human mind is not equipped" to engage in the patented process, the process is not abstract. In *SRI,* the Federal Circuit held that, because the human mind was not equipped to engage in network monitoring of specific network packets, the patented claims were eligible. *SRI,* 930 F.3d at 1304. Unlike in *SRI,* humans can engage in the mathematical techniques to perform machine learning (albeit slowly)—they would not need a new network packet-sensing organ like they would in *SRI. See* D.I. 13 ¶ 20 ("[B]y the time a human had collected the data, analyzed it, and produced a revised network map or event schedule, the data would be obsolete"—

implying that humans can indeed do these steps, it will just take longer). Indeed, the Court in *SRI* expressly limited its decision to cases involving improvement of technology, emphasizing that "the claims here are not directed to using a computer as a tool—that is, automating a conventional idea on a computer. Rather, the representative claim improves the technical functioning of the computer and computer networks by reciting a specific technique for improving computer network security." *SRI,* 930 F.3d at 1304. In contrast, the patents-in-suit do not improve technical functioning; the patents-in-suit merely use a computer as a tool to perform network mapping and event scheduling.

Recentive's argument flies in the face of recent Federal Circuit precedent that holds that a human being incapable of matching processing speed does not make an abstract process patent-eligible. *Trinity Info Media, LLC I Covalent, Inc.,* 72 F.4th 1355, 1363-65 (Fed. Cir. 2023). In *Trinity,* the asserted patents relate to "a poll-based networking system that connects users based on similarities as determined through poll answering and provides real-time results to the users." *Id.* at 1358. The patentee argued that humans could not engage in the same process, since humans cannot "perform nanosecond comparisons and aggregate result values with huge numbers of polls and members." *Id.* at 1363-64. The Federal Circuit rejected this argument for two reasons. First, the arguments were not "tethered to the asserted claims, which do not require nanosecond comparisons or aggregating huge numbers of polls and members." *Id.* at 1363. Second, the Federal Circuit noted as follows:

> [A]lthough a human could not "detect[ ] events on an interconnected electric power grid in real time over a wide area and automatically analyz[e] the events on the interconnected electric power grid," we nevertheless found such claims to be directed to an abstract idea *in Electric Power Group*. 830 F.3d at 1351, 1353-54. Similarly, a human could not communicate over a computer network without the use of a computer, yet we held that claims directed to enabling "communication over a network" were focused on an abstract idea in *ChargePoint*. 920 F.3d at 766-67. Likewise, Trinity's asserted claims can be directed to an abstract idea even if the claims require generic computer components or require operations that a human could not perform as quickly as a computer.

Id. at 1364. The same analysis employed by the Court *in Trinity* applies in the instant case. First, the patents-in-suit do not require that the machine learning process be complex—indeed they claim "regression" and "decision tree[s]" as relevant machine learning processes. D.I. 20 at 12. The patents-in-suit do not require a certain quantity of input data.[5] Thus, based solely on the claim language, the patents-in-

[5] While the patents-in-suit do require "real-time" updating, so did the patents in *Trinity*. D.I. 20 at 17; *see Trinity,* 72 F. 4th at 1358. Furthermore, claims that require "automatic, real-time analysis" "are merely directed to using generic computer components to add efficiency and speed to the abstract *idea." Nice Sys. Ltd v. Clickfox, Inc.,* 207 F. Supp. 3d 393, 401 (D. Del. 2016).

suit do not require the sorts of processing limitations Recentive asserts.

Second, the fact that a human cannot literally do the claimed process is not a barrier when the process itself is abstract. Just as a human cannot literally communicate over a computer network, humans cannot literally run a machine learning algorithm. However, each process remains abstract, as they are directed to an abstract idea. While *Trinity* does not involve machine learning, this Court finds its reasoning highly persuasive. Similar to *Trinity,* the Court finds that the claims of the patents-in-suit can be directed to an abstract idea even if the claims require generic machine learning or operations that a human could not perform as quickly as a computer using machine learning.

In its last argument to distinguish the Federal Circuit's precedent that algorithmic processes are unpatentable, Recentive analogizes the patents-in-suit to those in *McRO, Inc. v. Bandai Namco Games Am. Inc.,* 837 F.3d 1299 (Fed. Cir. 2016). *McRO* involved patents directed to automating rules sets for lip-synching animation. *Id.* at 1313. The Federal Circuit held that the use of an unconventional rule set distinguished the patents from the prior art human methods, as long as the application of the rules created a tangible result (the sequence of animated characters). *Id.* at 1315. The Federal Circuit emphasized that the genus of rules improved the prior subjective process, rendering the claims patent-eligible. *Id.* at 1316.

Fox distinguishes *McRO* for the following three reasons. First, it points to countervailing Federal Circuit precedent that held various optimization techniques to be unpatentable. D.I. 23 at 7-8. Second,

it points to the fact that *McRO* dealt with the replacement of an artistic, subjective, process, while the claimed invention replaces an imperfect objective process. *Id.* at 8. Third, it points to the requirement in *McRO* that the rules be "unconventional." *Id.* (quoting *McRO,* 837 F.3d at 1303). When considered in combination, the Court finds that these three factors are sufficient to distinguish *McRO.* Notably, the Federal Circuit has generally been hesitant to expand *McRO* beyond its facts. *See, e.g., Enco Sys., Inc. v. DaVincia, LLC,* 845 F. App'x 953, 957 (Fed. Cir. 2021) (distinguishing *McRO* because the claims were "limited to rules with specific characteristics and set out meaningful requirements for the first set of rules"); *Sanderling Mgmt. Ltd v. Snap Inc.,* 65 F.4th 698, 703 (Fed. Cir. 2023) *(similar); FairWarning IP, LLC v. latric Sys., Inc.,* 839 F.3d 1089, 1094 (Fed. Cir. 2016) (distinguishing *McRO* on the grounds that the prior art was artistically driven, rather than quantitatively optimized).

Fox highlights two cases that distinguish and limit *McRO: In re Bd. Of Trustees of Leland Stanford Junior Univ.,* 991 F.3d 1245 (Fed. Cir. 2021) *("Stanford")* and *SAP Am., Inc. v. InvestPic, LLC,* 898 F.3d 1161 (Fed. Cir. 2018). D.I. 23 at 7. In *Stanford,* the patent was directed to a computerized method of inferring certain genetic data during sequencing. The Federal Circuit found the claims directed to patent-ineligible subject matter. *Stanford,* 991 F.3d at 1250. It reasoned that the "generic steps of implementing and processing calculations with a regular computer do not change the character of [the claim] from an abstract idea into a practical application." *Id.* That court distinguished *McRO* on the grounds that it "involve[d] practical, technological improvements extending beyond improving the accuracy of a mathem-

atically calculated statistical prediction." *Id.* at 1251. Similarly, in *SAP,* the Federal Circuit found claims directed to statistically analyzing investment information and reporting the results to be abstract. *SAP,* 898 F.3d at 1161. Specifically, the Federal Circuit distinguished *McRO* on the grounds that *McRO* was directed "to the creation of something physical," unlike the quantitative predictions in *SAP*. *Id*

The Court agrees with Fox that the claims of the patents-in-suit are more analogous to those in *SAP* and *Stanford* than those in *McRO*. First, the network maps at issue here appear more analogous to the tangibility level present in *SAP's* financial models than the animated characters present in *McRO*. Both the models and the schedule are data objects—while the results can be written down, they are less tangible than the created animated characters from *McRO*. Second, changing a process where artists are trying to make a piece of art look good into an algorithmically driven one focused on quantitative prediction is distinct from changing a process where both humans and algorithms are trying to maximize TV ratings. *See Fair Warning IP* 839 F.3d at 1094 (Fed. Cir. 2016) (distinguishing *McRO* because "[t]he claimed rules in *McRO* transformed a traditionally subjective process performed by human artists into a mathematically automated process executed on computers"). Third, *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. *See* '811 patent at 3:21-30 (noting that "any suitable machine learning technique can be used" and that it can be "trained using any suitable training data").

The Court's decision is in line with other district courts' analysis of machine learning claims. *Power Analytics Corporation v. Operation Technology, Inc.* involved patents directed to "gathering information, e.g., real-time and predicted data values. and analyzing and updating a model with that information, e.g., comparing the gathered data and evaluating the prediction deviations to update the model" using a "machine learning engine" described in functional terms. C.A. No. 16-1955, 2017 WL 5468179, at *4-6 (C.D. Cal. July 13, 2017). In *Power Analytics* the court found the claims to be unpatentable since the patent "does not specify how the engine is configured. None of the claims recites a particular structure for how to compare the real-time and predicted values, how to pick the threshold values or how to update the virtual model." *Id.* at *4; *see also Health Discovery Corp. v. Intel Corp.,* 577 F. Supp. 3d 570 (W.D. Tex. 2021) (holding ineligible a patent on a machine learning algorithm as directed solely to unpatentable mathematical ideas).[6] Similar to *Power Analytics,* the patents-in-suit do not claim a specific machine learning technique but a broad application of machine learning to perform predictive analytics in a field.

Because the claims of both the Network Map Patents and the Machine Learning Training Patents are directed to abstract ideas, the Court proceeds to *Alice* step two.

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[6] Recentive distinguishes *Health Discovery,* arguing that *Health Discovery* related to the improvement of a machine learning process, while the patents-in-suit only apply machine learning to an existing idea. D.I. 20 at 13. But this is a reason that the patents-in-suit are *more* abstract than those in *Health Discovery,* not less.

ii. *Alice* Step 2

In *Alice* step two, the Court must consider the elements of the claim, both individually and as an ordered combination, to assess whether "the limitations present in the claims represent a patent-eligible application of the abstract idea." *Content Extraction,* 776 F.3d at 1347 (citation omitted). Merely reciting the use of a generic computer or adding the words "apply it with a computer" cannot convert a patent-ineligible abstract idea into a patent-eligible invention. *Alice,* 573 U.S. at 223; *Versata Dev. Grp., Inc. v. SAP Am., Inc.,* 793 F.3d 1306, 1332 (Fed. Cir. 2015). "To save a patent at step two, an inventive concept must be evident in the claims." *RecogniCorp,* 855 F.3d at 1327 (citation omitted).

Recentive contends that "the use of machine learning algorithms to generate network maps and optimize event schedules" is the inventive concept contained in the claims. D.I. 20 at 15-16. Recentive's argument for an inventive concept heavily relies on *Amdocs (Israel) Ltd v. Openet Telecom, Inc.,* 841 F.3d 1288 (Fed. Cir. 2016). In *Amdocs,* the Federal Circuit held eligible at *Alice* step two patent claims relating to managing data over large networks when they contained "specific enhancing limitations that necessarily incorporated the invention's distributed architecture." *Amdocs,* 841 F.3d at 1301. The court noted that the patents brought an "unconventional technological solution (enhancing data in a distributed fashion) to a technological problem." *Id.* at 1300. However, unlike *Amdocs,* wherein the court credited the patentee for inventing the claimed distributed architecture, here, it is undisputed that Recentive did not invent machine learning. The inventive concept

that Recentive identifies is merely the abstract idea—applying machine learning to optimization of network maps and event schedules. Again, however, this is insufficient to convert the patent-ineligible abstract idea into a patent-eligible invention. An inventive concept must be "sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself." *Alice,* 573 U.S. at 217-18 (alteration in original).

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 disclose "any suitable machine learning technique," while the Machine Learning Training Patents describe using either a neural network or a support vector model and iteratively training it. *See, e.g.,* '811 patent at 3:21-30; '367 patent at claim 1. These are broad, functionally described, well-known[7] techniques, not inventive concepts. The patents also claim only generic and conventional computing devices, which are insufficient to transform the abstract idea into patent-eligible subject matter. *Alice,* 573 U.S. at 224 ("Given the ubiquity of computers, wholly generic computer implementation is not generally the sort of additional feature that provides any practical assurance that the process is more than a drafting effort designed to monopolize the abstract idea itself."). As such, the Court is unable to identify any transformative

[7] Recentive argues that this presents a factual dispute that precludes granting Fox's Motion. D.I. 20 at 17. But Recentive has failed to identify any allegation in its FAC or any of the specifications of the patents-in-suit where it alleges that it invented machine learning, or that machine learning was anything other than well-known at the time of patenting.

inventive concept present in the patents-in-suit at *Alice* step two.

Because the Court has found that the claims of the patents-in-suit are directed to abstract ideas, and that there is no inventive concept, the claims are directed to patent-ineligible subject matter. Accordingly, Fox's motion to dismiss for failing to claim patent-eligible subject matter pursuant to 35 U.S.C. § 101 is granted.

e. Leave to Amend

In the alternative, Recentive requests that, if the Court is inclined to grant Fox's Motion, the Court grant its request for leave to amend its First Amended Complaint. D.I. 20 at 20. "Leave to amend must generally be granted unless equitable considerations render it otherwise unjust." *Arthur v. Maersk, Inc.,* 434 F.3d 196, 204 (3d Cir. 2006); *see also Foman v. Davis,* 371 U.S. 178, 182 (1962). "The Third Circuit has adopted a liberal approach to the amendment of pleadings." *Id.* "In the absence of undue delay, bad faith, or dilatory motives on the part of the moving party, the amendment should be freely granted, unless it is futile or unfairly prejudicial to the non-moving party." *Id.* (citations omitted). An amendment is futile if it "would fail to state a claim upon which relief could be granted." *In re Burlington Coat Factory Sec. Litig.,* 114 F.3d 1410, 1434 (3d Cir. 1997). "The standard for assessing futility is the 'same standard for legal sufficiency as applies under [Federal] Rule [of Civil Procedure] Rule 12(b)(6).'" *Great W. Mining & Min. Co. v. Fox Rothschild, LLP,* 615 F.3d 159, 175 (3d Cir. 2010) (quoting *Shane v. Fauver,* 213 F.3d 113, 115 (3d Cir. 2000)).

When deciding a Rule 12(b)(6) motion, a court considers "documents that are attached to or submitted with the complaint." *Buck v. Hampton Twp. Sch. Dist.,* 452 F.3d 256, 260 (3d Cir. 2006) (citation omitted). Here, Recentive attached to its FAC the patents-in-suit. D.I. 13, Exs. A-D. Thus, the Court reviewed the patents-in-suit when deciding Fox's Motion. The claims of the patents say what they say. Amending the First Amended Complaint would not change the Court's § 101 analysis. Thus, Recentive's amendments would be futile.

Accordingly, the Court denies Recentive's request for leave to amend its FAC.

IV. CONCLUSION

For the reasons stated above, the patents-in-suit are directed to patent-ineligible subject matter under 35 U.S.C. § 101. Thus, the Court grants Fox's Motion to Dismiss (D.I. 18). Separately, the Court finds that any amendment of the First Amended Complaint would be futile and, thus, denies Recentive's request for leave to amend its First Amended Complaint. The Court will enter an order consistent with this Memorandum Opinion.

APPENDIX C

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

Civil Action No. 22-1545-GBW

RECENTIVE ANALYTICS, INC.,

Plaintiff,

v.

FOX CORPORATION, a Delaware Corporation; FOX BROADCASTING COMPANY, LLC, a Delaware limited liability company; FOX SPORTS PRODUCTIONS, LLC, a Delaware limited liability company,

Defendants.

ORDER

At Wilmington this 19th day of September, 2023 consistent with the Memorandum Opinion issued this date, IT IS HEREBY ORDERED that Defendants Fox Corp., Fox Broadcasting Co. LLC, and Fox Sports Production LLC's Motion to Dismiss the First Amended Complaint Pursuant to Federal Rule of Civil Procedure 12(bX6) and 35 U.S.C. § 101 (D.I. 18) is GRANTED.

/s/ Gregory B. Williams
GREGORY B. WILLIAMS
UNITED STATES DISTRICT JUDGE

APPENDIX D

NOTE: This order is nonprecedential.

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

RECENTIVE ANALYTICS, INC.,

Plaintiff-Appellant

v.

FOX CORP., FOX BROADCASTING COMPANY, LLC, FOX SPORTS PRODUCTIONS, LLC,

Defendants-Appellees

2023-2437

Appeal from the United States District Court for the District of Delaware in No. 1:22-cv-01545-GBW, Judge Gregory Brian Williams.

ON PETITION FOR PANEL REHEARING AND REHEARING EN BANC

Before MOORE, *Chief Judge*, LOURIE, DYK, PROST, REYNA, TARANTO, CHEN, HUGHES, STOLL, and CUNNINGHAM, *Circuit Judges*,[1] and GOLDBERG, *Chief District Judge*.[2]

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[1] Circuit Judge Newman and Circuit Judge Stark did not participate.

[2] Honorable Mitchell S. Goldberg, Chief District Judge, United States District Court for the Eastern District of

PER CURIAM.

ORDER

Recentive Analytics, Inc. filed a combined petition for panel rehearing and rehearing en banc. The petition was referred to the panel that heard the appeal, and thereafter the petition was referred to the circuit judges who are in regular active service.

Upon consideration thereof,

IT IS ORDERED THAT:

The petition for panel rehearing is denied.

The petition for rehearing en banc is denied.

July 23, 2025
Date

FOR THE COURT

/s/ Jarrett B. Perlow
Jarrett B. Perlow
Clerk of Court

Pennsylvania, sitting by designation, participated only in the decision on the petition for panel rehearing.

APPENDIX E

RELEVANT STATUTORY PROVISIONS

The Patent Act, 35 U.S.C. § 1 *et seq.*, provides in relevant part:

35 U.S.C. § 101. Inventions patentable

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

APPENDIX F

EXEMPLARY PATENT CLAIMS

U.S. Patent No. 11,386,367

1. A computer-implemented method of dynamically generating an event schedule, the method comprising:

receiving one or more event parameters for series of live events, wherein the one or more event parameters comprise at least one of venue availability, venue locations, proposed ticket prices, performer fees, venue fees, scheduled performances by one or more performers, or any combination thereof;

receiving one or more event target features associated with the series of live events, wherein the one or more event target features comprise at least one of event attendance, event profit, event revenue, event expenses, or any combination thereof;

providing the one or more event parameters and the one or more event target features to a machine learning (ML) model, wherein the ML model is at least one of a neural network ML model and a support vector ML model;

iteratively training the ML model to identify relationships between different event parameters and the one or more event target features using historical data corresponding to one or more previous series of live events, wherein such iterative training improves the accuracy of the ML model;

receiving, from a user, one or more user-specific event parameters for a future series of live events to be held in a plurality of geographic regions;

receiving, from the user, one or more user-specific event weights representing one or more prioritized event target features associated with the future series of live events;

providing the one or more user-specific event parameters and the one or more user-specific event weights to the trained ML model;

generating, via the trained ML model, a schedule for the future series of live events that is optimized relative to the one or more prioritized event target features;

detecting a real-time change to the one or more user-specific event parameters;

providing the real-time change to the trained ML model to improve the accuracy of the trained ML model; and

updating, via the trained ML model, the schedule for the future series of live events such that the schedule remains optimized relative to the one or more prioritized event target features in view of the real-time change to the one or more user-specific event parameters.

U.S. Patent No. 11,537,960

1. A computer-implemented method of dynamically generating an event schedule, the method comprising:

receiving one or more event parameters for one or more series of live events, wherein the one or more event parameters comprise scheduling information for one or more performances by one or more performers;

receiving one or more event target features associated with the series of live events, wherein the one or more event target features comprise at least one of event attendance, event profit, event revenue, event expenses, or any combination thereof;

providing the one or more event parameters and the one or more event target features to a machine learning (ML) model, wherein the ML model is at least one of a neural network ML model and a support vector ML model;

iteratively training the ML model to identify relationships between the one or more event parameters and the one or more event target features using historical data corresponding to one or more previous series of live events, wherein such iterative training improves the accuracy of the ML model;

receiving, from a user, one or more user-specific event parameters for a future series of live events associated with a first performer, the user-specific event parameters including scheduling information for one or more future performances by at least one second performer;

receiving, from the user, one or more user-specific event weights representing one or more prioritized event target features associated with the future series of live events;

providing the one or more user-specific event parameters and the one or more user-specific event weights to the trained ML model;

generating, via the trained ML model, a schedule for the future series of live events that is optimized relative to the one or more prioritized event target features;

detecting a real-time change to the scheduling information for the one or more future performances by the at least one second performer;

providing the real-time change to the trained ML model to improve the accuracy of the trained ML model; and

updating, via the trained ML model, the schedule for the future series of live events such that the schedule remains optimized relative to the one or more prioritized event target features in view of the real-time change to the scheduling information for the one or more future performances by the at least one second performer.

U.S. Patent No. 10,911,811

1. A computer-implemented method for dynamically generating a network map, the method comprising:

receiving a schedule for a first plurality of live events scheduled to start at a first time and a second plurality of live events scheduled to start at a second time;

generating, based on the schedule, a network map mapping the first plurality of live events and the second plurality of live events to a plurality of television stations for a plurality of cities,

wherein each station from the plurality of stations corresponds to a respective city from the plurality of cities,

wherein the network map identifies for each station (i) a first live event from the first plurality of live events that will be displayed at the first time and (ii) a second live event from the second plurality of live events that will be displayed at the second time, and

wherein generating the network map comprises using a machine learning technique to optimize an overall television rating across the first plurality of live events and the second plurality of live events;

automatically updating the network map on demand and in real time based on a change to at least one of (i) the schedule and (ii) underlying criteria,

wherein updating the network map comprises updating the mapping of the first plurality of live events and the second plurality of live events to the plurality of television stations; and

using the network map to determine for each station (i) the first live event from the first plurality of live events that will be displayed at the first time and (ii) the second live event from the second plurality of live events that will be displayed at the second time.

U.S. Patent No. 10,958,957

1. A computer-implemented method for dynamically generating a network map, the method comprising:

obtaining a schedule for a first plurality of events scheduled to start at a first time and a second plurality of events scheduled to start at a second time;

generating, based on the schedule, a network map mapping the first plurality of events and the second plurality of events to a plurality of television stations for a plurality of cities,

wherein each station from the plurality of stations corresponds to a respective city from the plurality of cities,

wherein the network map identifies for each station (i) a first event from the first plurality of events that will be displayed at the first time and (ii) a second event from the second plurality of events that will be displayed at the second time, and

wherein generating the network map comprises using a machine learning technique to optimize an overall television rating across the first plurality of events and the second plurality of events;

automatically updating the network map on demand and in real time based on a change to at least one of (i) the schedule and (ii) underlying criteria,

wherein updating the network map comprises updating the mapping of the first plurality of

events and the second plurality of events to the plurality of television stations; and

using the network map to determine for each station (i) the first event from the first plurality of events that will be displayed at the first time and (ii) the second event from the second plurality of events that will be displayed at the second time.