

**United States Court of Appeals
for the Federal Circuit**

AI VISUALIZE, INC.,
Plaintiff-Appellant

v.

**NUANCE COMMUNICATIONS, INC., MACH7
TECHNOLOGIES, INC.,**
Defendants-Appellees

2022-2109

Appeal from the United States District Court for the District of Delaware in No. 1:21-cv-01458-RGA, Judge Richard G. Andrews.

Decided: April 4, 2024

RAJKUMAR VINNAKOTA, Cole Schotz P.C., Dallas, TX, argued for plaintiff-appellant. Also represented by TIMOTHY J.H. CRADDOCK, VISHAL H. PATEL.

ANISH R. DESAI, Weil, Gotshal & Manges LLP, New York, NY, argued for all defendants-appellees. Defendant-appellee Nuance Communications, Inc. also represented by DAVID JASON LENDER; AMANDA BRANCH, PRIYATA PATEL, Washington, DC; DAVID GREENBAUM, Greenbaum Law LLC, Englewood, NJ.

ALAN RICHARD SILVERSTEIN, Connolly Gallagher LLP,
Wilmington, DE, for defendant-appellee Mach7 Technolo-
gies, Inc.

Before MOORE, *Chief Judge*, REYNA and HUGHES, *Circuit
Judges*.

REYNA, *Circuit Judge*.

AI Visualize, Inc. sued Nuance Communications, Inc. and Mach7 Technologies, Inc. in the District of Delaware for patent infringement. Nuance and Mach7 moved to dismiss under Federal Rule of Civil Procedure 12(b)(6) for failure to state a claim. They argued that the asserted patent claims were directed to patent-ineligible subject matter and therefore invalid under 35 U.S.C. § 101. The district court granted the motion, finding the asserted claims were directed to an abstract idea and failed to provide an inventive step that transformed that abstract idea into a patent-eligible invention. The district court entered judgment and dismissed AI Visualize’s case. For the reasons below, we affirm.

BACKGROUND

A. The Asserted Patents

The four patents at issue are U.S. Patent Nos. 8,701,167 (’167 patent), 9,106,609 (’609 patent), 9,438,667 (’667 patent), and 10,930,397 (’397 patent). They are part of the same patent family and share substantially the same specification.¹ The field of the asserted patents generally relates to visualization of medical scans. Each patent is titled “Method and system for fast access to advanced visualization of medical scans using a dedicated web portal.”

¹ We refer to the ’609 patent specification for all four asserted patents.

According to the patents, medical imaging systems like magnetic resonance imaging (MRI) scans typically create a collection of two-dimensional cross-section images of a patient's body or organ. '609 patent, 1:27–32. These images are often stored together at a centralized server as a three-dimensional collection of data representing the scanned area, referred to as a “volume visualization dataset” or “VVD”. *Id.* at 1:30–35. At the time of the invention, “[t]echnology exist[ed]” to use these VVDs “to present rich[] three-dimensional (3D) views from existing two-dimensional (2D) scans that may lead to better diagnosis and prognosis.” *Id.* at 1:22–25; *see also id.* at 1:35–46.

But the inventors recognized complications with attempts to view portions of these large VVDs at a client computer. To look at a three-dimensional view, “either the user's computer or a dedicated server need[ed] to be powerful enough to support [the] processing power and the 2D scans need[ed] to be directly available to the user's computer via a high speed communication link.” *Id.* at 1:49–53. The patents thus explain that “[t]he present invention overcomes this limitation by teaching a method and system of a common and centralized infrastructure, for receiving, storing, processing and viewing large medical scans via a low-bandwidth web portal.” *Id.* at 1:58–62. They describe systems and methods for users to review three-dimensional (or higher dimension) “virtual views” of a VVD on a computer connected to the internet without having to transmit or locally store the entire VVD. *Id.* at 2:52–57.

At issue in this appeal are claims 1, 6, 7, 9, 12, and 13 of the '167 patent; claims 1, 4, 6–9, 19, 20, 22, 25, and 26 of the '609 patent; claims 1–3, 8, 9, 11, 14, and 15 of the '667 patent; and claims 1–3, 11–14, and 16–18 of the '397 patent. The parties agree that for purposes of a 35 U.S.C. § 101 analysis, these asserted claims can be sorted into three groups, with each group represented by one claim of the '609 patent. *See Berkheimer v. HP Inc.*, 881 F.3d 1360, 1365 (Fed. Cir. 2018) (holding that claims may be treated

as “representative” in a § 101 inquiry if a patentee makes no “meaningful argument for the distinctive significance of any claim limitations not found in the representative claim”).

The claims in group 1 involve systems where a web application determines which frames of a virtual view, if any, are already stored locally on a user’s device; directs the server to create any necessary, additional frames for transmission to the user’s device; compiles at the user’s device the locally-stored and newly-received frames to create the desired virtual view; and displays the user’s requested virtual view. ’609 patent, claim 1. The parties agree that claim 1 of the ’609 patent is representative of the group 1 claims.² Claim 1 recites:

1. A system for viewing at a client device at a remote location a series of three-dimensional virtual views over the Internet of a volume visualization dataset contained on at least one centralized database comprising:

at least one transmitter for accepting volume visualization dataset from remote location and transmitting it securely to the centralized database;

at least one central data storage medium containing the volume visualization dataset;

a plurality of servers in communication with the at least one centralized database

² The group 1 claims are: claims 1, 4, and 6–9 of the ’609 patent; claim 1 of the ’167 patent; claims 1–3 of the ’667 patent; and claims 1–3, 11–14, and 16–18 of the ’397 patent.

and capable of processing the volume visualization dataset to create virtual views based on client request;

a resource manager device for load balancing the plurality of servers;

a security device controlling the plurality of communications between a client device, and the server; including resource manager and central storage medium;

at least one physically secured site for housing the centralized database, plurality of servers, at least a resource manager, and at least a security device;

a web application adapted to satisfy a user's request for the three-dimensional virtual views by: a) accepting at a remote location at least one user request for a series of virtual views of the volume visualization dataset, the series of views comprising a plurality of separate view frames, the remote location having a local data storage medium for storing frames of views of the volume visualization dataset, b) determining if any frame of the requested views of the volume visualization dataset is stored on the local data storage medium, c) transmitting from the remote location to at least one of the servers a request for any frame of the requested views not stored on the local data storage medium, d) at at least one of the servers, creating the requested frames of the requested views from the volume visualization dataset in the central storage medium, e) transmitting the created frames of the requested views from at least one of the

servers to the client device, f) receiving the requested views from the at least one server, and displaying to the user at the remote location the requested series of three-dimensional virtual views of the volume visualization dataset by sequentially displaying frames transmitted from at least one of the servers along with any frames of the requested series of views stored on the local data storage medium.

Id. at claim 1.

Claim 19 of the '609 patent, a dependent claim that depends from claim 1, is representative of the group 2 claims.³ The claims in group 2 involve the same core system as the group 1 claims. The group 2 claims further require that if a virtual view has been previously requested by a user, it is assigned a “unique identifiable key.” *Id.* at 18:42–44. The web application compares the current user request for a virtual view to any previous user requests and determines whether any image frames with a corresponding unique identifiable key are already locally stored. *Id.* at 18:48–60.

Claim 22 of the '609 patent is representative of the group 3 claims.⁴ Unlike the claims in groups 1 and 2, the claims in group 3 do not include the step of initially checking to see whether any frames for the user's requested virtual view are stored locally. *See generally id.* at 19:26–51. The web application requests all the frames from the

³ The group 2 claims are: claims 19–20 of the '609 patent; claims 6–7 of the '167 patent; and claims 8–9 of the '667 patent.

⁴ The group 3 claims are: claims 22, 25, and 26 of the '609 patent; claims 9, 12, and 13 of the '167 patent; and claims 11, 14, and 15 of the '667 patent.

centralized server. The server transmits lower-quality versions of the frames for immediate viewing. It then transmits the higher-quality versions.

B. Procedural History

In October 2021, AI Visualize sued Appellees Nuance Communications, Inc. and Mach7 Technologies, Inc. (collectively, Nuance) in the District of Delaware for patent infringement. After Nuance moved to dismiss AI Visualize's complaint for failure to state a claim, AI Visualize filed a first amended complaint. Nuance again moved to dismiss. *AI Visualize, Inc. v. Nuance Commc'ns, Inc.*, 610 F. Supp. 3d 638, 640–41 (D. Del. 2022) (“*Decision*”). It argued that the amended complaint should be dismissed because the asserted claims were directed to patent-ineligible subject matter under 35 U.S.C. § 101. *Id.*

In its decision regarding the motion, the district court first observed that “[n]either party has argued that the Amended Complaint provides any additional information relevant to the patent eligibility of the Asserted Claims and neither party asserts that claim construction is needed.” *Id.* at 644. The district court then reviewed the claims, applying the two-step *Alice* inquiry, and concluded that all the asserted claims were patent-ineligible. *See id.* at 649.

Turning to *Alice* step one, the district court concluded that all the asserted claims are directed to the abstract idea of “retrieving user-requested, remotely stored information.” *See, e.g., id.* at 646. The district court reviewed the specification and found that the asserted patents attempted to address prior art problems with transmitting large VVDs over a standard internet connection. *Id.* The district court stated that the focus of the claimed advance over the prior art is “selectively accessing user-requested data, remotely, that is stored in a centralized storage location.” *Id.* It rejected AI Visualize's arguments that the claims are directed to improvements in computer functionality. *Id.*

At *Alice* step two, the district court independently considered each of the three representative claims. It concluded that no claim limitations transformed the representative claims into a patent-eligible application of an abstract idea. For example, for the group 1 claims, the district court found that the “inventive component of Claim 1 is the ability to obtain virtual views of a VVD over a low bandwidth, high latency network.” *Id.* at 647 (internal quotations omitted). It then stated that only one limitation in Claim 1 related to “achieving that stated goal,” and concluded that the limitation was “claimed functionally, at a high level of generality,” such that it did not save the claims from abstraction. *Id.* at 647–48. It conducted a similar *Alice* step two inquiry for the group 2 and group 3 claims, and ultimately held all asserted claims patent-ineligible under 35 U.S.C. § 101. *See id.* at 648–49.

AI Visualize appeals. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

DISCUSSION

We review the grant of a Rule 12(b)(6) motion to dismiss under the law of the applicable regional circuit, in this case, the Third Circuit. *Endo Pharms. Inc. v. Teva Pharms. USA, Inc.*, 919 F.3d 1347, 1352 (Fed. Cir. 2019). The Third Circuit reviews de novo a district court’s grant of a Rule 12(b)(6) motion to dismiss. *Id.* (citing *Ballentine v. United States*, 486 F.3d 806, 808 (3d Cir. 2007)). To survive a Rule 12(b)(6) motion, a complaint must allege “enough facts to state a claim to relief that is plausible on its face.” *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 570 (2007).

Section 101 of the Patent Act provides that: “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.” 35 U.S.C. § 101. But § 101 “contains an important implicit exception: Laws of nature, natural phenomena, and

abstract ideas are not patentable.” *Alice Corp. Pty. Ltd. v. CLS Bank Intern.*, 573 U.S. 208, 216 (2014) (citations omitted). The Supreme Court has articulated a two-step test, commonly referred to as the “*Alice*” test, for examining whether a patent claims patent-ineligible subject matter. *Id.* at 217–18. Under step one of the *Alice* test, we review whether a claim is directed to a patent-ineligible concept like an abstract idea. *Id.* at 217. If the answer is no, then the inquiry ends. *Id.* But if the answer is yes, the inquiry proceeds to the second step. *Id.* At step two, we review whether the claim recites elements sufficient to transform it into a patent-eligible application. *Id.* at 217–18.

We review § 101 patent eligibility under Federal Circuit law. *Smart Sys. Innovations, LLC v. Chi. Transit Auth.*, 873 F.3d 1364, 1367 (Fed. Cir. 2017). Eligibility is ultimately a question of law that may be based on underlying factual findings. *Berkheimer*, 881 F.3d at 1365. And it may be resolved on a Rule 12(b)(6) motion “where the undisputed facts, considered under the standards required by that Rule, require a holding of ineligibility under the substantive standards of law.” *SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1166 (Fed. Cir. 2018).

A. *Alice* Step One

Under *Alice* step one, we consider whether the claims at issue are directed to patent-ineligible subject matter, here, an abstract idea. This “directed to” inquiry does more than “simply ask whether the claims *involve* a patent-ineligible concept.” *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016) (emphasis in original). Instead, we must look to the character of the claims as a whole to determine whether they are “directed to” patent-ineligible subject matter. *Id.*

We often conduct the *Alice* step one inquiry by examining the “focus of the claimed advance over the prior art.” *Affinity Labs of Tex., LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1257 (Fed. Cir. 2016); *see also Enfish*, 822 F.3d

at 1335. In the realm of computer-related technology, such as in this case, patent claims may be non-abstract at *Alice* step one if the focus of the claimed advance is on an improvement in computer technologies, rather than the mere use of computers. *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016). The claims must “focus on a specific means or method that improves the relevant technology.” *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1314 (Fed. Cir. 2016).

We determine if the claim’s character as a whole is directed to ineligible subject matter by considering the claim limitations that are purported to describe the claimed advance over the prior art. *Free Stream Media Corp. v. Alphonso Inc.*, 996 F.3d 1355, 1362 (Fed. Cir. 2021). We recognize the focus of the claims without characterizing the claims at too high of a level of generality, untethered from the claim language itself. *Enfish*, 822 F.3d at 1337. Finally, we consider the claims in light of the specification but avoid importing concepts from the specification into the claims. *ChargePoint, Inc. v. SemaConnect, Inc.*, 920 F.3d 759, 767, 769 (Fed. Cir. 2019); *cf. Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005).

We agree with the district court that at *Alice* step one, all the asserted claims were directed to an abstract idea. *See, e.g., Decision*, 610 F. Supp. 3d at 646. We have explained that the steps of obtaining, manipulating, and displaying data, particularly when claimed at a high level of generality, are abstract concepts. *See, e.g., Elec. Power Grp.*, 830 F.3d at 1353–54 (collecting cases). Here, the claims in groups 1 and 2 recite a system that includes the functionally-oriented steps of: *storing* data (VVD) on a server, *accepting* user requests to view a portion of that data (virtual views), *checking* for the location of all data needed for the virtual view, “*creating*” image frames from any non-locally-stored virtual view data, *transmitting* all non-locally-stored image frames to the user, *compiling* all image frames, and sequentially *displaying* the image

frames to the user. *See* '609 patent, claim 1. The group 3 claims are similar. They involve transmitting two versions of all frames—initial, low-quality versions followed by higher-quality versions—from the server to the user. *Id.* at claim 22. In other words, the asserted claims are directed to converting data and using computers to collect, manipulate, and display the data.

We reached a similar conclusion in *Hawk Tech. Sys., LLC v. Castle Retail, LLC*, 60 F.4th 1349 (Fed. Cir. 2023). *Hawk* considered patent claims involving “viewing multiple simultaneously displayed and stored video images on a remote viewing device of a video surveillance system.” *Id.* at 1352. The patent holder emphasized that the claims required converting video data using certain parameters in such a manner that the data could be manipulated and displayed to conserve bandwidth and preserve the data quality. *Id.* at 1357. But “converting information from one format to another . . . is an abstract idea.” *Id.*

AI Visualize argues that the claims are not directed to an abstract idea because the claims require the *creation* of “on the fly” virtual views at a client computer. *See, e.g.*, Appellant Br. 28–29; Reply Br. 4. But the claim language makes clear that virtual view “creation” is achieved by the manipulation of a portion of the existing VVD. *See, e.g.*, '609 Patent, 17:25–27, 17:38–39. For example, Claim 1 of the '609 patent requires “accepting at a remote location at least one user request for a series of virtual views *of the volume visualization dataset*” and “creating the requested frames of the requested views *from the volume visualization dataset.*” *Id.* (emphasis added). As in *Hawk*, this “creation” of a virtual view from the existing VVD, recited in general terms, is abstract data manipulation.

AI Visualize points to multiple passages of the specification to support its view that “creation” of virtual views provides a technical solution to a technical problem, including one passage that addresses dynamic and static virtual

views by describing how related image frames are selected from a VVD. *See id.* at 9:34–52. As noted, we refuse to import details from the specification if those details are themselves not claimed. *ChargePoint*, 920 F.3d at 769. There is no recitation in the claim about *how* to create frames or virtual views, much less in a manner that would meaningfully support a technical solution to a technical problem in the prior art.

We conclude that the asserted claims are directed to an abstract idea.

B. *Alice* Step Two

AI Visualize argues that to the extent the claims are found to be patent-ineligible at *Alice* step one, the claims are made patent-eligible at *Alice* step two.

At *Alice* step two, we consider the claim elements individually and as an ordered combination to assess whether they “transform the nature of the claim into a patent-eligible application of the abstract idea.” *Two-Way Media Ltd. v. Comcast Cable Commc’ns, LLC*, 874 F.3d 1329, 1338 (Fed. Cir. 2017) (citation omitted). At this step we must ask: “[w]hat else is there in the claims before us?” *Mayo Collaborative Servs. v. Prometheus Lab’ys, Inc.*, 566 U.S. 66, 78 (2012). To survive at *Alice* step two, a claim must recite something “significantly more” than an abstract idea itself. *Alice*, 573 U.S. at 217–18. A claim cannot rest on the patent-ineligible concept alone to transform the invention into something significantly more than that concept. *BSG Tech LLC v. Buyseasons, Inc.*, 899 F.3d 1281, 1290 (Fed. Cir. 2018). Nor can claim elements or combinations of claim elements that are routine, conventional, or well-known transform the claims. *Id.* at 1290–91.

Although *Alice* step two involves a question of law, whether a claim limitation or combination of limitations is well-understood, routine, and conventional may involve an underlying factual question. *Id.* at 1290 (“Whether a

combination of claim limitations supplies an inventive concept that renders a claim ‘significantly more’ than an abstract idea to which it is directed is a question of law. Underlying factual determinations may inform this legal determination.”). Thus, at the motion to dismiss stage, “patentees who adequately allege their claims contain inventive concepts survive a § 101 eligibility analysis under Rule 12(b)(6).” *Aatrix Software, Inc. v. Green Shades Software, Inc.*, 882 F.3d 1121, 1126–27 (Fed. Cir. 2018); *see also Cellspin Soft, Inc. v. Fitbit, Inc.*, 927 F.3d 1306, 1317–18 (Fed. Cir. 2019). Conclusory allegations, *Simio, LLC v. FlexSim Software Prod., Inc.*, 983 F.3d 1353, 1365 (Fed. Cir. 2020), or those “wholly divorced” from the claims or the specification, *Cellspin*, 927 F.3d at 1317, cannot defeat a motion to dismiss. And a patentee that emphasizes a claim’s use of certain technology, for example, a general-purpose computer, fails at step two when the intrinsic record establishes that the technology is conventional or well-known in the art. *See, e.g., Int’l Bus. Machs. Corp. v. Zillow Grp., Inc.*, 50 F.4th 1371, 1380 (Fed. Cir. 2022).

Here, the district court observed that AI Visualize made no arguments regarding additional allegations in the amended complaint, nor presented any assertions that the construction of certain claim terms was relevant to the *Alice* inquiry. *Decision*, 610 F. Supp. 3d at 644. Based on its review of the intrinsic record and the allegations in the complaint, the district court ultimately concluded that each group of asserted claims involved nothing more than the abstract idea itself or conventional computer functions or components. *Id.* at 647–49. For example, for both group 2 and 3 claims, the district court determined the alleged inventive concepts in the claims were no more than the abstract ideas themselves. *Id.* at 648–49. It determined that nothing in the claim limitations transformed the abstract nature of the claims into patent-eligible subject matter. *Id.* at 647–49. We agree.

AI Visualize argues that the creation of virtual views sufficiently transforms the claims into patent-eligible subject matter. *See, e.g.*, Appellant Br. 43–45; Reply Br. 26. But as we noted above, the claimed step of creating a virtual view is itself an abstract idea. *See Hawk*, 60 F.4th at 1359. Moreover, the intrinsic record undermines AI Visualize’s argument by showing that virtual views were known in the art. ’609 patent, 1:22–25. The shared specification provides that technology existed at the time of the invention “to present richer three-dimensional (3D) views from existing two-dimensional (2D) scans that may lead to better diagnosis and prognosis.” *Id.* AI Visualize acknowledged this at oral argument. *See, e.g.*, Oral Arg. 2:40–3:13.

AI Visualize also argues that creation of virtual views “on demand” or in “real-time” in response to a user request transforms the claims into something “significantly more” than the abstract idea. *See, e.g.*, Appellant Br. 43. We are not persuaded. In *Affinity Labs*, we found claims involving a “customized user interface” failed to recite an inventive concept. *Affinity Labs*, 838 F.3d at 1271–72. Without a “concrete application of the abstract idea of delivering content,” the claims were not transformed into patent-eligible subject matter at *Alice* step two. *Id.* at 1272. Similarly in *Electric Power Group*, the claimed invention purported to pull information regarding power grid operations from many sources, process and analyze it, and display relevant data to a user “in real time”. *Elec. Power Grp.*, 830 F.3d at 1356. Because the claims disclosed only “entirely conventional, generic technology,” they remained patent-ineligible at *Alice* step two. *Id.* As in *Affinity Labs* and *Electric Power*, AI Visualize’s amended complaint has not made sufficient factual allegations to support that the claims involve unconventional technology or a concrete application of the abstract idea of virtual view “creation.” AI Visualize’s claim that the “virtual views” are created “on the fly,” without more, cannot support patent eligibility at *Alice* step two.

AI Visualize’s amended complaint also failed to adequately allege an inventive concept in the ordered combination of claim limitations. “[M]erely reciting an abstract idea performed on a set of generic computer components, as [the claims] do[] here, would ‘not contain an inventive concept.’” *Two-Way Media*, 874 F.3d at 1339 (quoting *BASCOM Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1350 (Fed. Cir. 2016)). We therefore agree with the district court that AI Visualize’s claims are not saved at *Alice* step two.

We hold that the asserted claims are patent ineligible because they are directed to an abstract idea and fail to transform that abstract idea into patent-eligible subject matter.

CONCLUSION

We have considered AI Visualize’s other arguments and find them unpersuasive. For the above reasons, we hold that the asserted claims are directed to patent-ineligible subject matter. We thus affirm the district court’s dismissal under Rule 12(b)(6) based on subject matter ineligibility under § 101.

AFFIRMED

COSTS

No costs.