# United States Court of Appeals for the Federal Circuit

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**AI VISUALIZE, INC.,**
*Plaintiff-Appellant*

**v.**

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

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2022-2109

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

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Decided: April 4, 2024

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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 Technologies, Inc.

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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."

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[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;
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> 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

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[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

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