NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

D3D TECHNOLOGIES, INC.,
Appellant

v.

MICROSOFT CORPORATION,
Appellee

2023-1462

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. IPR2021-00878.

Decided: April 3, 2024

TAREK N. FAHMI, Ascenda Law Group, PC, San Jose, CA, argued for appellant.

SARAH JACK, Fish & Richardson P.C., Minneapolis, MN, argued for appellee. Also represented by, NITIKA GUPTA FIORELLA, Wilmington, DE; AAMIR ABDULQADER KAZI, Atlanta, GA; BETTY H. CHEN, Desmarais LLP, San Francisco, CA.

Before PROST, SCHALL, and REYNA, *Circuit Judges*.

SCHALL, *Circuit Judge*.

D3D Technologies, Inc. ("D3D") owns U.S. Patent No. 9,980,691 ("the '691 patent"), which is at issue in *D3D Technologies, Inc. v. Microsoft Corp.*, 6:20-cv-01699 (M.D. Fla). In this appeal, D3D challenges the Final Written Decision ("FWD") of the Patent Trial and Appeal Board ("Board") in an inter partes review proceeding initiated by petitioner Microsoft Corporation ("Microsoft"). In the FWD, the Board found claims 1–9 and 11–21 of the '691 patent rendered obvious by the prior art combination of U.S. Patent Publication No. 2006/0279569 ("Acosta") and U.S. Patent Publication No. 2004/0059214 ("Tomoda"). *Microsoft Corp. v. D3D Techs., Inc.*, IPR2021-00878, 2022 WL 17254077 (P.T.A.B. Nov. 28, 2022) ("*Final Written Decision*"). For the reasons stated below, we *affirm*.

BACKGROUND

I

The '691 patent relates to methods for providing three-dimensional (or "3D") viewing of images. The patent describes combining image "slices" (i.e., two-dimensional (or "2D") images) generated by medical imaging devices such as CT (Computed Tomography), MRI (Magnetic Resonance Imaging), and PET (Positron Emission Tomography) to create a "volume of interest." '691 patent col. 2 ll. 43–46, col. 5 ll. 8–10, 21–43. The volume of interest is presented in a three-dimensional representation to a display unit worn on a user's head. *Id.* col. 2 ll. 46–48, col. 5 ll. 10–13, 36–60.

The '691 patent also describes the generation and display of a movable three-dimensional cursor within the three-dimensional image space. *Id.* col. 17 ll. 14–20, 36–41. In a medical setting, for example, this allows a user to subtract from view tissue falling outside the cursor or to rotate the cursor to permit examination of the volume of interest from different angles. *Id.* col. 17 ll. 36–57.

II

As noted, the Board found claims 1–9 and 11–21 of the '691 patent obvious in view of Acosta and Tomoda. Acosta describes a system and method for analyzing and imaging three-dimensional volume data sets using a "3D sampling probe" that "corresponds to a sub-volume of a larger 3D volume." J.A. 1505 Abstract, J.A. 1506 figs. 1–2, J.A. 1526 ¶ 59, J.A. 1528 ¶ 83. Acosta primarily discusses use of its system and method for manipulating seismic data, but also explains that they can be used "for analyzing and imaging in the medical field, where the datavalue element of the voxel is obtained from a CAT (computerized axial tomography) scanner or a magnetic resonance imaging (MRI) procedure." J.A. 1526 ¶ 54; *see also id.* ¶¶ 51–53.[1]

Tomoda describes an apparatus and method for processing a plurality of images using a three-dimensional region of interest ("ROI") specifying unit. J.A. 1417 Title, ¶¶ 10–13, J.A. 1421 ¶ 72, J.A. 1412–14 figs. 9–11. In one embodiment of Tomoda's process, three-dimensional image data is obtained, two-dimensional images are produced from the three-dimensional image data, and then a spherical three-dimensional ROI is placed and located in the two-dimensional images. J.A. 1421 ¶¶ 71–72. At that point, one or more sections of the original three-dimensional image that cross the specified ROI are searched, and their sectional images are displayed. J.A. 1420 ¶ 55, J.A. 1421 ¶¶ 72–73, J.A. 1414–15 figs. 11–12.

III

The parties assert, and we agree, that for purposes of this appeal independent claim 1 of the '691 patent is representative. Claim 1 pertains to displaying a three-

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[1] A "voxel" is a volume element within a 3D volume data set. *See* J.A. 1523 ¶ 6, J.A. 1526 ¶ 51; '691 patent col. 13 ll. 55–65.

dimensional cursor in the volume of interest and then selecting portions of the two-dimensional image slices corresponding to the cursor's volume for further processing. It provides as follows:

> 1. A method comprising:
>
> [a] generating a three-dimensional image space or volume from a plurality of two-dimensional radiological image slices;
>
> [b] generating a three-dimensional cursor that has a non-zero volume;
>
> [c] displaying the three-dimensional cursor in the three-dimensional medical image space or volume;
>
> [d] responsive to a first input, moving said three-dimensional cursor within the three-dimensional medical image space or volume; and
>
> [e] responsive to a second input, selecting portions of the two-dimensional radiological image slices corresponding to the volume of the three-dimensional cursor for further processing.

'691 patent col. 22 ll. 49–63.

The Board found elements [a]–[d] of claim 1 to be taught by Acosta. *Final Written Decision*, 2022 WL 17254077, at *17–19. On appeal D3D does not challenge those findings. That leaves only element [e] of claim 1 at issue.

As seen, in relevant part element 1[e] recites "selecting portions of the two-dimensional radiological image slices corresponding to the volume of the three-dimensional cursor for further processing." Microsoft's petition asserted that the combination of Acosta and Tomoda, which it referenced as "ATC," J.A. 185, taught this limitation, J.A. 198–99. Specifically, the petition stated that "ATC renders [1e] obvious . . . because Acosta's 3D sampling probe would

have been used to select the ROI in response to an input, and Tomoda's method would have been used to select portions of the original 2D radiological slices corresponding to the volume of [Acosta's] 3D cursor for further processing, e.g., displaying." J.A. 194; *see also* J.A. 57, 185. In its Patent Owner Response, D3D contended that, in the petition, Microsoft "effectively admits that Acosta fails to teach selection of portions of two-dimensional radiological image slices corresponding to the volume of the three-dimensional cursor for further processing." J.A. 517. Instead, D3D argued, Microsoft relied solely on Tomoda as teaching that part of claim element 1[e]. *Id.* D3D further argued that Tomoda describes the selection of *entire* two-dimensional image slices that correspond to the ROI, not the selection of *portions* of the image slices corresponding to the volume of the three-dimensional cursor, as required by element 1[e]. J.A. 517–29.

In the FWD, the Board construed as follows the language in element 1[e] that recites "selecting portions of the two-dimensional radiological image slices corresponding to the volume of the three-dimensional cursor for further processing":

> (1) the term "corresponding" means "to match or have a close similarity;" and (2) the phrase "selecting portions" is limited in two respects, specifically, first that the selected portions are "of the two-dimensional radiological image slices" and second that the selected portions must be corresponding to the volume of the three-dimensional cursor; and (3) the phrase "for further processing" is an intended use that has no patentable weight.

Final Written Decision, 2022 WL 17254077, at *8.

The Board then set forth Microsoft's argument that the combination of Acosta and Tomoda teaches element 1[e], *id.* at *19–20, 21–22, and D3D's arguments to the contrary, *id.* at *20–21, 22.

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