UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Medivis, Inc.
Petitioner

v.

Novarad Corp.
Patent Owner

Case IPR2023-00042
US Patent No. 11,004,271

SUPPLEMENTAL DECLARATION OF MAHESH S. MULUMUDI, M.D.

In Support of Patent Owner Pursuant to 37 C.F.R. § 42.64(b)(2)

1. I have read Petitioner's Objections to Exhibits Filed with Patent Owner Response (Paper 13) ("Petitioner's Objections") and provide additional comments with respect to this action.

EXPERTISE IN THE RELEVANT FIELD

2. I agree with Petitioner that "systems and methods for using augmented reality during medical procedures" is the relevant field.

RELEVANT TIME PERIOD

3. I also agree with Petitioner that the relevant time period for the '271 Patent is on or before March 30, 2017.

PERSON OF ORDINARY SKILL IN THE ART ("POSITA")

4. Petitioner asserts "the hypothetical person of ordinary skill in the art at the time … (POSA) [aka POSITA] would be 'a person with a bachelor's degree in computer science, electrical engineering, or a related field with several years of experience in the design, development, and study of augmented reality devices and either (a) familiar with conventional medical imaging data and visualization of data for medical procedures or (b) working with a team including someone with such familiarity.'" Petition at 10 (quoting Kazanzides Decl., Ex. 1012, ¶¶ 25).

5. I disagree that a POSITA necessarily requires a degree in computer science or electrical engineering. As the Petitioner acknowledges, the '271 Patent does not disclose new hardware, but new software. *See* Petition at 4-5. Thus, first

and foremost, a POSITA would be familiar with conventional medical imaging data and visualization of that data for use during a medical procedure. Secondly, a POSITA would be familiar with software engineering, user interface design, user interaction design, human-computer interaction for the implementation of AR and/or VR environments.

6. I am very familiar with conventional medical imaging data and visualization of that data for use during medical procedures. As stated in my declaration, I have over 20 years of experience treating peripheral vascular and coronary artery diseases using 2D and 3D medical imaging, including "3D Ultrasound, gated Computerized Tomography (CT), and Magnetic Resonance Imaging (MRI)." *See* Ex. 2002 at ¶ 13[1]; *see also* Ex. 2003 at 1. I am "[p]roficient in medical image processing techniques and manipulation techniques to determine the appropriate sizing of values and other devices, ensuring precise anatomical placement." Ex. 2003 at 1. I have "[e]xtensive expertise in utilizing [2D and 3D] ultrasound guidance for safe vascular access, facilitating entry into arteries and veins, and navigating medical equipment securely to the desired implantation site or area of interest." *Id*.

7. I also have several years of experience in the design and development

[1] Paragraph 29 of my declaration should read "from 2000 through today," as it is written in paragraph 13 of my declaration.

of virtual and augmented reality environments. I created a VR enhanced telemedicine solution designed to enhance remote healthcare delivery by providing an immersive and realistic experience. I also recently submitted a U.S. Patent Application for an innovative VR application that leverages biofeedback to offer mindfulness exercises aimed at reducing stress and enhancing focus.

8. Finally, I am a named inventor of several U.S. Patents. *See* Ex. 2003 at 7-12. Two patents relate to a "guidewire insertion tool configured to measure a length of an anatomic region" in order to "accurately position surgical devices in the body." U.S. Patent Nos. 11,311,206, *Abstract* and 1:21-24. *See also* U. S. Pat. No. 10,271,763. Six patents are related to an "acoustic collection system [e.g., stethoscope] for handheld electronic devices [e.g., smartphones and tablets]" and a "mounting system" for such acoustic collection systems. U.S. Pat. No. 9,602,917, *Abstract*; U.S. Patent No. 10,898,161, *Abstract*; *see also* U.S. Pat. Nos. 10,271,816; 9,855,019; 9,706,975; and 9,414,155.

RULE 26 REQUIREMENTS

9. As stated in my CV, I have served as an expert witness on three other occasions in 2001, 2007, and most recently in 2020. The 2020 case[2] occurred in

[2] *Cynthia Smith, as personal representative of Robert Emery Smith v. Vitaly Piluiko*, Case No. 2012-ca-0365, Circuit Court 4th Judicial District, Clay County, Florida.

Florida and concerned a transcatheter valve replacement that resulted in an annular rupture.

10. In my CV, I also provided a current list of all my publications. Ex. 2003 at 13-14.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under § 1001 of Title 18 of the United States Code.

Date: 8/8/2023

Mahesh Mulumudi, M.D.