

AI Software Expands Access To Cardiovascular Care

NYU Langone



With millions of Americans suffering from cardiovascular-related diseases, the need for simple, transportable, affordable diagnostic tools has never been higher. Ultrasound technology has been a crucial tool for diagnosing cardiovascular problems for years but requires highly trained sonographers for accurate results. This need for trained technicians is a barrier in cardiovascular care—one that researchers at New York University (NYU) and Weizmann Institute of Science are aiming to break down.

Dr. Achiav Ludomirsky, a professor and cardiologist at NYU Grossman School of Medicine, has worked with Professor Yaron Lipman from the Weizmann Institute to develop AI software that can be paired with commercial ultrasound devices to guide technicians during use and enhance image quality. Attached to a standard tablet, the AI software provides real-time guidance to users, allowing any healthcare professional—regardless of previous sonography experience—to effectively operate ultrasound equipment.

By eliminating the need for extensive training, the AI-guided ultrasound technology can be used in rural and low-income areas where specialized professionals are hard to come by. Echocardiograms (or heart ultrasounds) can save lives, and expanding access has the potential to prevent heart attacks, heart disease and strokes.

NYU and the Weizmann Institute filed patents on the intellectual property. To commercialize the technology, UltraSight (previously known as OnSight Medical) was founded in 2018. The company licensed the patents from the two universities and conducted studies to show the technology's effectiveness.

The US Food and Drug Administration approved the use of the UltraSight AI software in the US at the end of July 2023 for two-dimensional transthoracic echocardiography (2D-TTE) in adults, specifically imaging the 10 standard views of the heart. These images show the four chambers of the heart, major blood vessels and the four heart valves, and can be used to determine blood pressure and the size of the heart.

The FDA approval was based on studies conducted at Sheba Medical Center in Israel, in which resident doctors and registered nurses who were not experienced in cardiac sonography performed ultrasound on 240 cardiac patients. The images they collected, as well as images from a professional sonographer, were evaluated by a panel of US board-certified cardiologists who did not know the source of any of the images. The study found that the scans provided by the inexperienced staff were similar in quality to those provided by the experienced staff, despite having no prior sonography experience.

With this AI technology, diagnosis, treatment and after care of patients can be more accessible and more accurate, saving lives and easing stress for families and loved ones.

This story was originally published in 2023.

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