
Samsung Applies Deep Learning Technology to Diagnostic Ultrasound Imaging



To meet the growing need of faster and more efficient diagnostic imaging solutions, [Samsung Medison](#), a global medical equipment company and an affiliate of Samsung Electronics, announced that it is applying deep learning technology to ultrasound imaging for the first time in breast lesion analysis. The premium ultrasound system RS80A with Prestige's latest upgrade includes 'S-Detect for Breast,'* which now employs a deep learning algorithm as well as other imaging enhancements and diagnostic functions designed for radiologists such as fusion and CEUS (Contrast-enhanced ultrasound) imaging.

S-Detect for Breast utilizes big data collected from numerous breast exam cases and provides the characteristics of the displayed lesion as well as a recommendation on whether the selected lesion is benign or malignant. By adopting a deep learning algorithm in lesion segmentation, characteristic analysis, and assessment processes, users are now provided with more accurate results.

"We saw a high level of conformity from analyzing and detecting lesion in various cases by using the S-Detect," said professor Han Boo Kyung, a radiologist at Samsung Medical Center. "Users can reduce taking unnecessary biopsies and doctors-in-training will likely have more reliable support in accurately detecting malignant and suspicious lesions."

The other key upgrades of the RS80A with Prestige include:

Enhanced Workflow and Imaging for Radiologists

- S-Fusion — Now provides 'Respiration Auto' function that minimizes registration gap between real-time ultrasound and recorded CT/MRI images, which is caused by the difference in images when the patient inhales and exhales.
- CEUS+ — Applies Samsung's 'VesselMax' and 'FlowMax' to generate clear visualization of vessels and blood flow when viewing ultrasound images with contrast agents.
- S-3D Arterial Analysis — Enables 3D imaging of vessels and provides volume measurement of artery plaque in a simplified way. Users can also track the morphological changes of the artery.

Advanced Display Technology

- S-Harmonic — Generates greater image conformity from near to far field while reducing signal noise based on wider bandwidths and higher frequency.
- HQ Vision — Visualizes anatomical structures with improved clarity. It helps make a reliable diagnosis especially for MSK (Musculoskeletal) imaging such as tendon and muscles.

Since its first launch in 2014, the RS80A has been providing users with easy, fast, and accurate diagnosis around the world including various medical institutions such as Mayo Clinic (U.S.) and Charité University Hospital (Germany). The latest RS80A with Prestige is now available in European and Middle Eastern countries and will launch in the Americas, China, and Russia in due course.

"Samsung is moving forward in the healthcare market by not only utilizing its IT and display technology but also bringing new software solution to ultrasound diagnosis like S-Detect," said Dongsoo Jun, President of Health & Medical Equipment Business at Samsung Electronics and CEO of Samsung Medison. "With our leading software technology, we will continue to develop advanced imaging functions for users to experience faster and more confident diagnosis."

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