GE HealthCare Accelerates AI Innovation with Healthcare-Specific Foundation Models Powered by NVIDIA

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- Using NVIDIA Technology, SonoSAMTrack[1] demonstrates its pliability and applicability in ultrasound image segmentation, consistently delivering high-quality results over a wide range of demanding datasets and conditions

SAN JOSE, Calif.--(BUSINESS WIRE)--Mar. 18, 2024-- Building on a long-term artificial intelligence (AI) collaboration, GE HealthCare used NVIDIA technology to develop its recent research model SonoSAMTrack[1], which combines a promptable foundation model for segmenting objects on ultrasound images called SonoSAM[1]. SonoSAMTrack focuses on segmenting anatomies, lesions, and other essential areas in ultrasound images. SonoSAMLite is a streamlined version of SonoSAMTrack.

“GE HealthCare is committed to investing in innovative technologies that help tackle some of the industry’s biggest challenges. Our vision is to accelerate advancements in medical imaging by introducing foundational AI technologies, thereby empowering data scientists to expedite AI application development and eventually help clinicians and enhance patient care. By utilizing these versatile, generalist models, we aim to adapt more efficiently to new tasks and medical imaging modalities, often requiring far less labeled data compared to the traditional model retraining approach. This is particularly significant in the healthcare domain, for which data is especially time-consuming and costly to obtain,” said Parminder Bhatia, Chief AI Officer, GE HealthCare.

In healthcare, leveraging AI to enhance patient care, streamline operational efficiencies, and make informed decisions has become increasingly important. Traditionally, the approach to integrating AI into healthcare systems required the retraining of models to accommodate the unique requirements of different patient populations and hospital settings. This conventional method can lead to heightened costs, complexity, and the need for specialized personnel, therefore hindering the broad adoption of AI technologies in healthcare domains. Foundation models have risen to prominence due to their ability to operate as human-in-the-loop AI systems, garnering significant attention.

Foundation and generative AI models could play a crucial role by enabling swift adaptation to various diseases, facilitating screening, early detection, tracking progression, and identifying non-invasive biomarkers with minimal training requirements, such as zero-shot or few-shot settings. In a recent study conducted by GE HealthCare, its research project, SonoSAMTrack, showcased high performance across seven ultrasound datasets, encompassing a wide range of anatomies (adult heart and fetal head) and pathologies (breast lesions and musculoskeletal pathologies), as well as different scanning devices. Notably, it outperformed competing methods by a substantial margin. In addition, SonoSamTrack exhibited enhanced performance metrics in terms of speed and efficiency, requiring only 2-6 clicks for precise segmentation, thus minimizing user input[2]. This achievement was made possible through distillation and quantization techniques, utilizing the NVIDIA TensorRT software development kit and other capabilities for quantization-aware training.

“Combining NVIDIA’s accelerated computing and AI technology stack with GE HealthCare’s medical imaging expertise will help enhance patient care by making ultrasound diagnostics quicker and more accurate,” said David Niewolny, Director of Business Development for Healthcare and Medical, NVIDIA. “This collaboration underscores the importance of using AI for life-saving advancements and setting new standards in healthcare.”

To learn more about SonoSAM, please visit here.

[1] Technology in development that represents ongoing research and development efforts. These technologies are not products and may never become products. Not for sale. Not cleared or approved by the U.S. FDA or any other global regulator for commercial availability.

[2] Hariharan Ravishankar, Rohan Patil, Vikram Melapudi, Harsh Suthar, Stephan Anzengruber, Parminder Bhatia, Kass-Hout Taha, Pavan Annangi. SonoSAMTrack -- Segment and Track Anything on Ultrasound Images. https://doi.org/10.48550/arXiv.2310.16872

About GE HealthCare Technologies Inc.

GE HealthCare is a leading global medical technology, pharmaceutical diagnostics, and digital solutions innovator, dedicated to providing integrated solutions, services, and data analytics to make hospitals more efficient, clinicians more effective, therapies more precise, and patients healthier and happier. Serving patients and providers for more than 100 years, GE HealthCare is advancing personalized, connected, and compassionate care, while simplifying the patient’s journey across the care pathway. Together our Imaging, Ultrasound, Patient Care Solutions, and Pharmaceutical Diagnostics businesses help improve patient care from diagnosis, to therapy, to monitoring. We are a $19.6 billion business with 51,000 colleagues working to create a world where healthcare has no limits.

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