SAMPL LAB
CLINICAL

SAMPL Clinical is the arm of SAMPL Lab at the Weizmann Institute of Science responsible for research collaborations with the medical community

OUR MISSION

Working at the crossroads of science, engineering and medicine, we strive to advance signal processing and AI innovations in healthcare and medical diagnosis - for the welfare of patients worldwide

Medical Imaging is crucial for diagnosis and monitoring — yet due to technological challenges it remains a tool that is costly, limited and complicated to use:

Data Acquisition	Data acquisition is costly in terms of energy and physical space, causing systems to be large, heavy and immobile.
Image Quality	In certain imaging modalities, e.g. ultrasound, the quality of image acquisition itself is very operator-dependent.
Limited Resolution	Due to physical constraints and loss of data during image formation resolution is often limited.
Image Interpretation	Image interpretation by radiologists is naturally prone to variability and discordance.

Our goal is to develop game-changing solutions that make medical imaging more efficient, effective and accessible to everyone.

By harnessing the technologies developed at the SAMPL lab, we facilitate their transition from pure theoretical research, to real-world clinical studies and solutions.

Using innovative signal acquisition, processing and machine learning tools, we aim to enhance early detection of diseases, reduce diagnostic errors, support physicians in their decision-making, and create imaging devices that are small, portable and less costly with improved quality.

OUR APPROACH

Bringing the bench to the bedside and back!

Clinical Studies

We conduct various clinical studies in collaboration with hospitals in Israel and abroad.

Clinical Forum

We host a clinical forum on medical imaging with leading physicians from hospitals throughout the country, in order to identify urgent health challenges and new topics for research.

Mentoring

We provide mentoring to resident physicians at their basic science research.

Our major areas of research currently include:

- Analysis of ultrasound “channel data” to enhance disease detection and assessment
- Use of multi-modality imaging and AI for earlier and better diagnosis of diseases
- AI for conversion between imaging modalities (e.g. using deep learning to convert US images to CT synthetically)
- Sensors for health monitoring
- AI-guided ultrasound image acquisition with the goal of overcoming operator-dependency
- Use of AI for Covid-19 diagnosis and prediction of outcome
- Deep learning and contrast agents for super-resolution vascular ultrasound imaging
- Lung ultrasound

Contact

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