Department of Electrical Engineering
Technion—Israel Institute of Technology
Signal Acquisition Modeling and Processing Lab - המעבדה לחישה מידול ועיבוד אותות

Correlation Beamformer for Ultrasound Diverging-Waves

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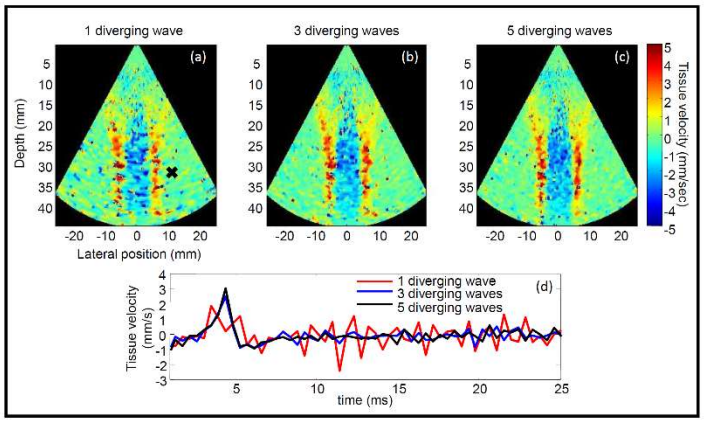
Medical ultrasound is used for tissue visualization by radiating it with acoustic energy transmitted by an array of elements. Novel imaging method based on insonification with diverging improves image quality and acquisition time, however, it is limited by data transfer rates and severe computational load.

Recently, a new array geometry have been introduced, which provides a novel way to perform array processing with much fewer physical sensors when the second-order statistics of the received data is used.



In this project, we will derive a model for diverging waves imaging, based on second-order statistics. Incorporating the new array geometry into our model will allow to create a way of imaging which requires much less transducer elements, paving the way to 3D imaging. This work will include the basics of ultrasound imaging as well as advanced tools for array processing and MATLAB simulations.

Required background:
Introduction to Digital Signal Processing (044198)
MATLAB

רוצים עוד רקע ? סרקו