Bayesian algorithm for transverse wave speed estimation

Duke LICENSING & VENTURES

Value Proposition

Shear wave elasticity imaging technique is an ultrasound-based non-invasive method of differentiating tissues based on their stiffness contrast. Tissue stiffness is often associated with underlying pathological conditions including liver cirrhosis and cancer. However, shear wave elasticity imaging method can introduce bias and image artifacts leading to misdiagnosis. Thus, methods that can reduce bias in shear wave imaging can enhance its clinical utility.

Technology

The inventors at Duke have developed a method to reduce image artifacts generated during shear wave elasticity imaging. Statistical inference methods were used to reduce bias in the shear wave speed images leading to improved tissue characterization. A maximum a posteriori (MAP) estimation method reduced the bias compared to the maximum likelihood (ML) estimation method.

Advantages

- The Bayesian shear wave estimator significantly improves the spatial resolution of the images
- MAP estimators have lower bias or variance

Patents

Patent Number: 10,451,587

Title: METHODS, SYSTEMS AND COMPUTER PROGRAM PRODUCTS FOR ESTIMATING SHEAR WAVE SPEED USING STATISTICAL INFERENCE

Country: United States of America

Duke File (IDF)

T-004158

Inventor(s)

- Rosenzweig, Stephen
- Byram, Brett
- Nightingale, Kathryn
- Palmeri, Mark
- Rouze, Ned

Links

- From the lab of Dr. Kathy Nightingale

College

Pratt School of Engineering

For more information please contact

Koi, Bethany

919-681-7552

bethany.koi@duke.edu