Elasticity imaging (EIM) is an emerging and exciting area of medical imaging techniques. The goal of biomechanical imaging is to map the mechanical properties, for example Young’s Modulus of, soft tissues. Physicians find elastography very appealing, in as much as it provides a visual and quantitative representation of what they are trying to detect with their finger tips. Furthermore, it has the potential to see smaller, deeper, and even inclusions that might be detectable by touch. Medical researchers have identified a myriad of potential applications for elastography, including monitoring of breast tissue and of the calibration pad. Registration accuracy was monitored via a “Registration Quality Indicator (RQI)” as described below.

In about 2/3 of 107 image sequences, the advancing front initialization provided a sufficiently precise initial guess that the LIFE algorithm clearly found the global minimum (as assessed by the RQI). The remaining cases were often characterized by large frame-to-frame motion, poor signal-to-noise ratio images, and/or out-of-plane deformation. Most acceptable sequences had no poor quality frames, but large frame-to-frame deformations would result in poor matching of isolated frames; any such frames could be identified via the RQI and removed from the measured deformation data.

The advanced registration method is a sufficiently robust initialization strategy to accommodate clinical data. Monitoring registration accuracy via RQI or similar method is critical to identify uninterpretable deformation measurements.

### Results

These findings are in agreement with those of previous research, which have shown that EMI is a promising tool for the early detection of breast cancer.

### References


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