

**A FRAMEWORK FOR JOINT ANALYSIS OF
ELECTRICAL IMPEDANCE TOMOGRAPHY AND
TOMOSYNTHESIS DATA IN BREAST CANCER
DETECTION**

By

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ABSTRACT

Electrical Impedance Tomography (EIT) has shown promise as a technology which can be employed in conjunction with Digital Tomosynthesis Mammography, or other imaging modalities, for breast cancer screening. It has become necessary and desirable to develop a method by which these two sets of data can be displayed in such a way as to allow a radiologist to quickly and easily visualize the results of both imaging modalities as well as their spatial correspondence. This has been accomplished by developing tools to display tomosynthesis images with high contrast, to co-register tomosynthesis and EIT data, and to overlay the EIT data on the tomosynthesis image using color. Results and examples are presented from data collected jointly in patient studies performed at Massachusetts General Hospital.