

Department of Electronic Engineering

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Research

My research is in the field of Electrical Impedance Tomography (EIT). EIT is a non-invasive form of medical imaging and is clinically used in the measurement of admittivity distribution within the human body.

There are many ways to reconstruct the admittivity image, the simplest is based on a circular revolution of equipotential AC voltage measurements. These measurements are acquired at the surface of the imaged medium whilst the medium is electrically excited with a known AC current waveform.

My specific region of research is in the design and development of a high resolution, modular 100 electrode precision imaging device and real-time image reconstruction techniques. My system reduces time variant artifact errors by simultaneously sampling all electrodes, the raw data is processed via FPGAs before being post-processed by computer.

The image below is of a 16 electrode Phantom tank attached to my quad channel module, the Phantom was constructed to validate the image reconstruction techniques used.

