Advanced Medical Image Analytics and Software Development Using Ultrasound

A research group comprised of perinatal clinicians and biomedical engineers who conduct translational imaging research in a hospital setting. The multidisciplinary team allows development of novel ultrasound algorithms to image, evaluate and quantify structure and function (perfusion and impedance) of structures such as organs and tumours.

More Information

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Competitive advantage

- Unique in having engineers and clinicians working side-by-side to optimise information from ultrasound. Co-location allows immediate addressing of clinical problems and research translation into clinical practice
- Deal directly with 'raw' ultrasound image data to write new algorithms for perfusion, vascular impedance, automation and evaluation of waveform data, camera-tracking-based stitching of 3D ultrasound and other tools
- The first team in Australia to introduce a research-dedicated ultrasound machine

Impact

- Novel technologies allow non-invasive evaluation of the foetus and neonate
- Developed tools for whole organ labelling (segmentation)
- The capacity to measure large organs or structures using 3D ultrasound
- Novel Doppler assessment has been validated in an animal study

Successful outcomes

- Pilot studies indicate that perfusion technology is a potential predictive marker of pre-eclampsia
- Undertaking further clinical trials in foetal medicine, neonatology and gynaecology

Capabilities and facilities

- Numerous dedicated research ultrasound machines as well as a dedicated research imaging space adjacent to the rest of the research facili