

THE CENTRE FOR ADVANCED IMAGING

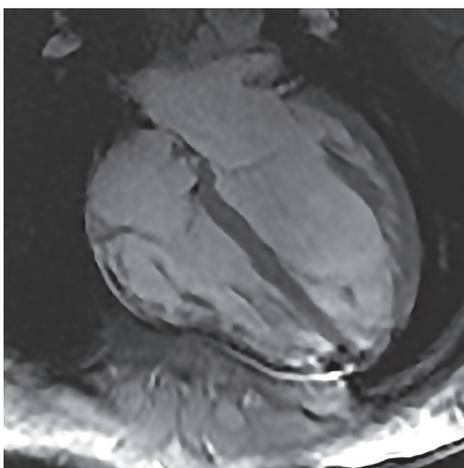


Human Imaging at CAI

The Centre for Advanced Imaging (CAI) represents a major enhancement of the imaging capabilities at The University of Queensland with the state-of-the-art imaging facility housing the most comprehensive and advanced range of magnetic resonance instrumentation in the southern hemisphere.

Access to CAI human imaging facilities is available on a fee basis. Expert staff at CAI offer the following services:

- Assistance with experimental design
- Optimisation
- Data and image analysis and interpretation



Cardiac imaging at 7 Tesla

Magnetom 7T Whole Body MRI

The Siemens Healthcare 7 Tesla Whole Body MRI system is the first to be installed in Australia and is also the Flagship instrument of the National Imaging Facility (NIF). The system includes a high-performance gradient with multi-receive and multi-transmit radiofrequency capabilities, which further increase sensitivity.

Technical specifications:

- The gradient capabilities on this instrument are 70 mT/m at a slew rate of 200 T/m/s
- Single channel transmit/32 channel receive head coil
- 8 channel transmit/32 channel receive cardiac coil
- Single channel transmit/28 channel knee coil
- Surface coil
- 8 channel transmit/receive $^{19}\text{F}/^1\text{H}$ body coil designed for lung imaging

Ancillary equipment:

- Projector for delivery of cognitive paradigms
- Eye tracker
- Simultaneous EEG
- Physiological monitoring/recording
- Motion capture cameras
- Full range of response boxes for fMRI paradigms
- Temperature monitoring/recording
- External ECG recording/trigger

Top image: Cerebral blood vessels of a human brain

This is a Flagship instrument of the National Imaging Facility (www.anif.org.au)

Sonata 1.5T Whole Body MRI

This scanner has available a range of anatomy and application-specific radiofrequency coils, as well as most of the currently used imaging sequences.

The system is configured with the latest parallel imaging technology, and is used extensively for musculoskeletal, cardiac, function brain imaging and clinical breast imaging.

Technical specifications:

- Sonata gradients capable of 40 mT/m, with a slew rate of 200 T/m/s
- A large range of coils including head, extremity, flex, body matrix, shoulder and breast

Magnetom Trio 3T Whole Body MRI

CAI has a wide range of coils and software for applications in neurology, cardiology, angiography, oncology, orthopaedics and paediatrics. The laboratory is able to provide tools for cognitive neuroscience studies.

Technical specifications:

- The Siemens Magnetom Trio system, with Total Imaging Matrix (Tim)
- Parallel acquisition acceleration is standard with a 32-channel head coil
- 12 channels for body imaging
- 8 channel knee coil
- Shoulder coil
- Body matrix coil
- Neck coil
- Flex coils

Ancillary equipment:

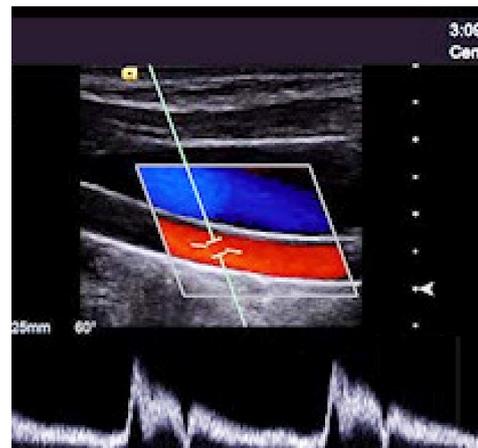
- Projector for delivery of cognitive paradigm
- Eye tracker
- Simultaneous EEG
- Physiological monitoring/recording
- Motion capture cameras
- Full range of response boxes for fMRI paradigms

Acuson S3000 Ultrasound

The high performance Siemens/Acuson S3000 Ultrasound can be used for a variety of studies including long structures such as tendons, nerves and blood vessels, fetal monitoring, the assessment of musculoskeletal structures, heart valve function, blood flow velocity and direction and organ perfusion.

Technical specifications:

- B-mode, colour and pulsed wave Doppler, power Doppler, harmonic imaging
- Spatial compounding in B mode, colour and power Doppler
- Capability of multimodal review – for example to compare the ultrasound image to that of MRI/CT/PET on the same screen
- Panoramic imaging of 240cm in length
- Off line transfer and data processing
- Elastography capabilities to assess tissue stiffness. This system is capable of real time voxel placement and shear wave velocity estimation, as well as the generation of corresponding colour coded tissue stiffness map



Carotid artery ultrasound



102996 May 2016 CRICOS Provider Number 00025B



www.facebook.com/
centreforadvancedimaging

For more information please contact:

The Centre for Advanced Imaging
Building 57, The University of Queensland
Brisbane QLD 4072 AUSTRALIA

www.cai.uq.edu.au
humanMRI@cai.uq.edu.au
+61 7 3365 4100



THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA