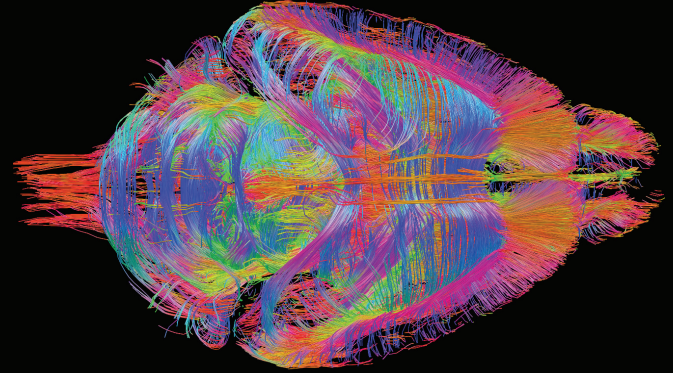


Biomedical Image Analysis and Informatics



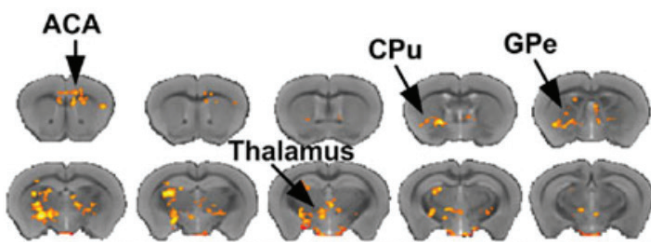
The University of Queensland's Centre for Advanced Imaging (CAI) contains a comprehensive range of biomedical imaging instruments. These include Magnetic Resonance Imaging (MRI), Positron Emission Tomography (PET) and Computed Tomography (CT) human and animals systems. These systems meet clinical specifications and have additional capability allowing us to modify protocols to acquire novel data. We have a range of other capabilities, such as autoradiography and fluorescence imaging.

In relation to biomedical image analysis and informatics, the Centre comprises experts in the specific areas of biomedical imaging, medical physics and mathematics. These skills can be leveraged to help with experimental design, data acquisition and extraction of information from animal and human images.

The biomedical image analysis and informatics facility can provide help with a range of imaging problems, including:

- Functional imaging (e.g. fMRI), including experimental design and post-processing of data
- Molecular imaging – target identification, choice of radiotracer, imaging setup, parametric mapping

- High resolution structural imaging
- Arterial mapping
- Novel contrast mechanisms
- Fast imaging
- Image post processing, including corrections for motion and eddy currents, bias field, noise, in addition to registration and segmentation



Functional connectivity for Huntington disease (HD) mouse model with respect to wild type (WT)

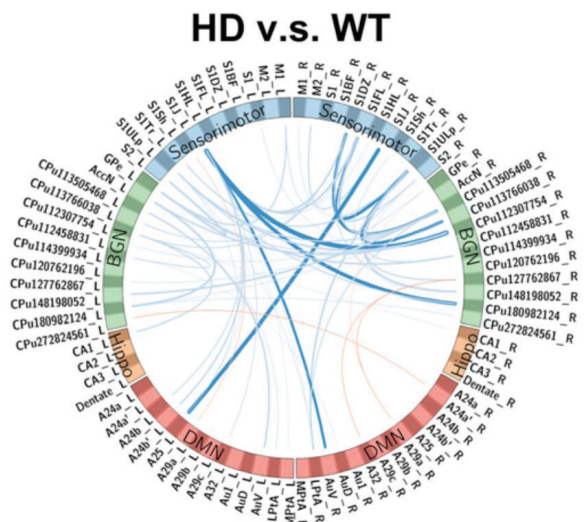


Image top: Mouse brain tractography

Previous application areas include:

- Primarily supporting animal (i.e. rodent and companion animals) and human biomedical imaging facilities
- Mapping of demyelination and remyelination in multiple sclerosis
- Assessment of microbleeds and plaque build-up in Alzheimer's disease
- Assessment of damage in traumatic brain injury
- Mapping changes in mouse models of multiple sclerosis
- Localisation of focal epilepsy
- Mapping of blood brain barrier damage
- Brain changes with aging
- Magnetic resonance fingerprinting (MRF)
- Tumour imaging
- Ultra-short echo time imaging for hard tissues

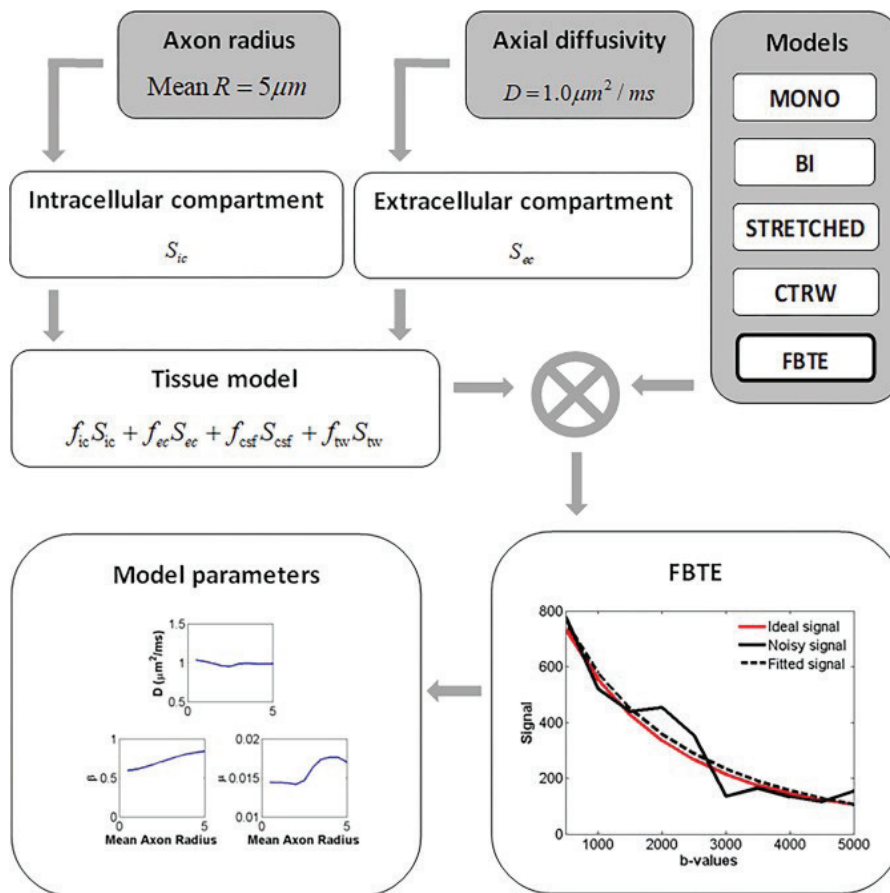
Available facilities:

- High-end image processing workstations
- Expertise in a range of software
- Access to biomedical image analysis experts who are also experts in biomedical imaging data instrumentation and data acquisition

The provision of service may entail:

- Fee for service
- Collaboration with CAI staff
- Joint publications
- Joint student or post-doctoral fellow supervision
- Grant collaboration

For more information and contact details, visit: cai.uq.edu.au/facilities/image-analysis-and-informatics



Example showing a framework developed to extract white matter parameters using anomalous diffusion MRI modelling

CRICOS Provider Number 00025B

109638 July 2020

Enquiries W: cai.centre.uq.edu.au
 T: +61 7 3365 4100
 E: viktor.vegh@cai.uq.edu.au

Centre for Advanced Imaging
 The University of Queensland
 Brisbane Qld 4072 Australia

facebook.com/UQ.CAI
 @UQ_CAI



CREATE CHANGE