

2009 PhD / Masters Project

Digitisation of Synchrotron Imagery

Some of the most exciting applications of synchrotron research tools over recent years have been for medical research. These tools such as X-ray angiography or more general X-ray imaging typically focus on anatomy, or the physical structure of the biological components being imaged. One key area of these imaging technologies, that lags significantly behind, is the digitisation of these image sets. The digitisation of data sets would allow for increased quantitative analysis and also opens the door to computer modelling aspects of function related to the anatomy – the key example of this is the computer modelling of blood flow through the vasculature.



X-ray images of human kidneys interlaced with arteries from the aorta. (left)

Digitised images of human arterial systems. (above)

The Project:

The successful applicant, with interests in image processing and computer programming will be a key part of a team continuing ground-breaking work in synchrotron imaging. The project focuses on engineering approaches of quantitative analysis applied to medical imaging and various medical research programs. The applicant will work directly in multidisciplinary teams of Engineers, Physicists and Medical researchers looking to advance our understanding of stroke, heart disease, kidney disease and glaucoma.

Contact Details:

For more information, please visit:

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Facilities

- SPring-8 Synchrotron (Japan)
- Australian Synchrotron
- MuBeta Synchrotron Analogy Facility
- Image Processing Computer Grid