

4::2::2 Neuroscience Informatics

Platform Leader: Dr Gary Egan

Platform Manager: Mr Eric Tan

The Neuroscience Informatics platform includes operating nodes at the Brain Research Institute, Monash University, the Mental Health Research Institute, Sunshine Hospital, the Howard Florey Institute and the National Neuroscience Facility, Melbourne. Projects accessing the facility at these sites during the 2003-04 financial year included:

- ⚡ Neuroimaging projects on functional connectivity and magnetic resonance spectroscopy analysis (Brain Research Institute)
- ⚡ Functional imaging and transcranial magnetic stimulation studies (Monash University)
- ⚡ Morphological brain changes in psychotic patients using structural neuroimaging (Sunshine Hospital)
- ⚡ Structural parcellation studies in neonates and normal adults using high resolution neuroimaging (Howard Florey Institute and University of Melbourne)

During the 2003-04 financial year the Neuroscience Informatics platform developed both databasing software and analytical software for use in neuroscience research. Databasing software has been developed for a number of independent imaging databases, and is being applied to neonatal, animal imaging and normal human datasets. Data on these databases has been carefully curated and checked. This technology will also be applicable to other imaging datasets (e.g. psychosis and Alzheimer's disease). Analytical software has been developed for the analysis of brain segmentation, in particular for cortical analysis. A cluster of 64-bit computers has been installed in the NNF to provide a high performance compute capability for large Neuroscience Informatics datasets. This cluster is initially being utilised in the analysis of large structural neuroimaging datasets.

Looking towards the future, the platform has also been focused on securing ongoing funding for future sustainability, including a Co-operative Research Centre application called SensornetCRC. If successful, funds from this venture will be used to maintain and expand the infrastructure established through the NNF. The platform has also been involved in an application for an ARC Large Equipment Infrastructure Facility (LEIF) grant. This application is aimed at expanding the NNF neuroimaging database and computation facilities into a national network, including collaborators from the universities of Queensland, Sydney and Flinders. A new application for STI funding for research into neuropsychiatry, being made by Neurosciences Victoria Ltd, also includes an expansion of the neuroscience informatics (databasing and analytical) requirements for neuroimaging research into psychiatry and degenerative diseases.

Thanks to Eric Tan, Platform Manager, and to the Platform Management Committee for their effort and dedication over the past year:

- ⚡ Dr Gary Egan – Howard Florey Institute
- ⚡ Dr Geoff Stuart – Mental Health Research Institute
- ⚡ Dr David Abbott – Brain Research Institute
- ⚡ Dr Nellie Georgiou-Karistianis – Department of Psychology, Monash University
- ⚡ Associate Professor Trevor Dix – Victorian Bioinformatics Consortium, Monash University
- ⚡ Dr Rhodri Davies – Howard Florey Institute
- ⚡ Mr Kim Sampson – Neurosciences Victoria Ltd

For more information on the Neuroscience Informatics platform please go to www.nnf.com.au/informatics

