

POSITION DESCRIPTION

POSITION TITLE:	Mathematical Neuroscience Research Fellow (Research Officer)
CLASSIFICATION:	RO2-RO3
EMPLOYMENT:	Full-time fixed term, 3 years
GROUP:	Translational Neuroscience
LOCATION:	Herston

POSITION OBJECTIVES

This research fellow will pursue large-scale computational modelling and simulation of brain activity, and innovative analyses of time series and neuroimaging data, with particular focus on epilepsy and neurodegenerative diseases.

ORGANISATIONAL CONTEXT

QIMR Berghofer is a statutory body under the QIMR Act (1945). The mission of QIMR Berghofer is to promote the wellbeing of humankind through medical research, to maintain within the State of Queensland an internationally recognised Centre for Medical Research, to develop that Centre as the primary focus of Medical Research within the State and to co-operate with, and where possible assist the work of other medical research establishments within the State and throughout the world.

The Systems Neuroscience Group (SNG) is an independent research team within QIMR Berghofer. The SNG is a multi-disciplinary group that seeks to combine innovative data analysis with computational modelling of the brain in health and clinical neuroscience.

REPORTING STRUCTURE

This position reports to Dr Christine Guo.

PRIMARY RESPONSIBILITIES

- Contribute to developing and analysing new mathematical models of large-scale brain activity, including both biophysical neural mass models and networks of non-linear oscillators.

- Simulate computational models on GPUs and/or high performance computing clusters, and collaborate in applying these to clinical and neuroscience research.
- Perform innovative analyses of high-dimensional neurophysiological and neuroimaging data.
- Contribute to experimental design and prepare manuscripts for related studies.
- Participation in intra-mural group activities, including presentation at lab meetings and collaboration with other lab members and clinicians.
- Ensure work practices comply with the requirements of the Work Health and Safety Act related legislative requirements, the Institute's WH&S policies and procedures.

KEY SELECTION CRITERIA (Qualifications, Experience, Skills, and Abilities)

Essential

- PhD in mathematics, physics, bioengineering, computer sciences or related field
- Demonstrated ability to implement mathematical methods in code
- Evidence of strong oral and written communication skills

Desirable

- Published track record in analysis of non-linear dynamical systems, particularly neural mass or neural field models or coupled non-linear oscillators
- Previous experience with GPU programming or high performance computing clusters
- Previous experience in neuroscience research
- Expertise in time series analysis or signal processing