University of Nottingham
UK | CHINA | MALAYSIA

ROLE PROFILE

Job Title: Research Associate/Fellow

School/Department: Psychology

Job Family and Level: Research and Teaching Level 4 (Appointment will be Level 4 Career training grade where an appointment is made before PhD has been completed)

Contract Status: Fixed term for a period of 3 years

Hours of Work: Hours of work are full-time (36.25 hours); however applications are also welcome from candidates wishing to work part-time (minimum 20 hours per week). Please specify in your application if you wish to work part time and the number of preferred hours.

Location: University Park, Psychology

Reporting to: Mark Humphries

Purpose of the New Role:

The postdoctoral research fellow will join the Humphries' group on the MRC-funded project "Uncovering the neural basis of movement transitions". The project's goal is to understand how the dynamics of neural populations reconfigure to control the transitions between movements. We will take advantage of newly available datasets of population activity during discrete (in primate) and rhythmic (in *Aplysia*) movements to answer three key questions:
1. How does population activity reconfigure to transition from one movement to another?
2. Do individual neurons matter or only the joint population dynamics?
3. What changes to the underlying circuit drive the transitions in neural activity?

The fellow will tackle these questions using a range of existing dynamical systems approaches of the Humphries group, and create novel approaches to tackle them. The fellow will work independently, and as part of the Humphries' group. The research primarily will be developing scientific theory, developing analysis methods, and the coding and running of analyses. The Fellow will be responsible for disseminating their work at conferences and writing up their research for journal publication.

The Fellow will have excellent opportunities to use their initiative and creativity from this initial starting point, and develop their own lines of research inquiry.

	Main Responsibilities	% time per year
1.	Addressing main scientific questions by analysing neural population recordings from Aplysia and from motor cortex	40%
2.	Developing new algorithms for analysing population recording data	20%
3.	Produce and write-up work of suitable quality for publication in leading peer-reviewed journals	15%

4.	Present research findings at relevant meetings	5%
5.	Actively read the scientific literature relating to (and around) the project	10%
6.	Contribute to the work of others in the laboratory by offering practical and intellectual help; this may include assisting in the supervision of PhD and undergraduate students	10%

Knowledge, Skills, Qualifications & Experience

	Essential	**Desirable**
Qualifications/ Education	PhD in a relevant discipline (computational neuroscience, physics, computer science, or engineering). Applications will also be considered from candidates who are about to submit or have submitted their PhD thesis, but not yet had their viva.	
Skills/Training	Good programming skills in MATLAB and/or Python Excellent oral and written communication skills, including the ability to communicate complex information with clarity. Ability to independently manage your own research on a day-to-day basis	Analysis of neural time-series data Excellent attention to detail
Experience	Experience of analysing dynamical systems OR experience of unsupervised machine-learning techniques (e.g. dimension reduction; clustering; classifiers) A track-record of high quality research, as evidenced by published journal papers or pre-prints	Knowledge of neurobiology Knowledge of network theory