Identifying Networks and Neurochemical Mechanisms for Hallucinations and Working Memory Deficits in Schizophrenia using Neural Network Modelling and Neuroimaging

Type of award	PhD Research Studentship
Department	Computer Science
Scholarship Details	Minimum £19,000 p.a. subject to confirmation of award.
Duration	3.5 years
Eligibility	Home (UK)
Start Date	16 January 2023

PhD Topic Background/Description

The debilitating hallucinations and cognitive symptoms of schizophrenia, while usually considered separately, may emerge due to a common mechanism.

The goal of this project is to identify cross-level mechanisms that produce hallucinations and working memory deficits in schizophrenia. We aim to do this by advancing our multi-area neural network models to replicate the hallucinations, working memory deficits, and cortical activity observed in people with schizophrenia, and by testing model predictions with neurochemical and functional imaging data. You may also use this computational platform to propose and test *in*-silico urgently needed new treatments.

You will be based in the Cognition, Anatomy and Neural Networks group (PI Dr. Sean Froudist-Walsh), in the [Computational Neuroscience Unit](#) at the University of Bristol. You will lead a collaboration with the world leading Multi-Modal Translational Imaging and Cognitive Neuroscience & Psychosis labs (PIs. Prof. Anissa Abi-Dargham, Prof. Mark Slifstein, Dr. Jared Van Snellenberg) at Stony Brook Hospital, New York, USA, and Prof. Matt Jones' cutting-edge systems & translational neuroscience lab in Bristol. You will have the opportunity to spend two week-long visits to Stony Brook, New York.

We are committed to building a diverse intellectual community, and particularly encourage women and members of underrepresented groups to apply to this position.

Further Particulars

Candidate Requirements

Applicants must hold/achieve a minimum of a Master's degree (or international equivalent) in computational sciences, computer science, neuroscience, psychology, physics, mathematics or other relevant discipline. Applicants without a Master's qualification may be considered on an exceptional basis, provided they hold a first-class undergraduate degree. Please note, acceptance will also depend on evidence of readiness to pursue a research degree.

Basic skills and knowledge required:

- **Essential:**
- a strong quantitative background
- demonstrable interest in neuroscience
- ability to work in a strongly collaborative and interdisciplinary setting
- **Desirable (not necessary):**
- previous experience in brain research (broadly defined)
- previous experience in computational neuroscience or a related field
- strong programming skills, ideally in python

Scholarship Details

A tax-free stipend of £19,000 p.a. for 3.5 years will also cover tuition fees.

Informal enquiries

For questions about the **research** topic please contact Dr Sean Froudist-Walsh

For questions about **eligibility and the application** process please contact SCEEM Postgraduate Research Admissions sceem-pgradmissions@bristol.ac.uk

Application Details

Prior to submitting your application, please send the academic listed a short personal statement (1 or 2 pages) and a CV. No indication of an offer can be made until we receive a completed application.

To apply for this studentship, submit a PhD application through https://www.bristol.ac.uk/study/postgraduate/2022/eng/phd-computer-science/ and click on the 'Apply Now' link.

Please ensure that in the Funding section you tick "I would like to be considered for a funding award from the **Computer Science** Department" and specify the title of the scholarship in the "other" box below along with the name of the supervisor.

Closing date for applications: **28 October 2022**