



RESEARCH FELLOW

DEPARTMENT/UNIT	School of Psychological Sciences
FACULTY/DIVISION	Faculty of Medicine, Nursing and Health Sciences
CLASSIFICATION	Level A
DESIGNATED CAMPUS OR LOCATION	Clayton campus

ORGANISATIONAL CONTEXT

Everyone needs a platform to launch a satisfying career. At Monash, we give you the space and support to take your career in all kinds of exciting new directions. You'll have access to quality research, infrastructure and learning facilities, opportunities to collaborate internationally, as well as the grants you'll need to publish your work. We're a university full of energetic and enthusiastic minds, driven to challenge what's expected, expand what we know, and learn from other inspiring, empowering thinkers. Discover more at www.monash.edu.

The **Faculty of Medicine, Nursing and Health Sciences** is the largest faculty at Monash University, a global university with campuses across Victoria and international locations in Indonesia, Malaysia, China, India and Italy. Our Faculty offers the most comprehensive suite of professional health training in Victoria.

We consistently rank in the top 40 universities worldwide for clinical, pre-clinical and health sciences. In 2022, our Nursing and Midwifery climbed to the rank of 14th in the world and 1st in Victoria in the QS World University Rankings.

We want to improve the human condition. That is our vision - it has no expiration date. By educating the current and future healthcare workforce, and undertaking medical research, both discovery and clinical, our students, staff and alumni all work to directly improve people's quality of life.

Contributing to the global health care agenda, the Faculty aspires to lead in all areas of its research and education activity, collaborating to influence local, national and international policy to improve health and social outcomes, and reduce health inequity.

We've made a major impact in the world of medical research and are globally recognised for our quality education of over 63,000 doctors, nurses, and allied health professionals and health researchers. The future health of our communities is underpinned by the sustained excellence of our education and research capabilities.

We are ambitious and committed to maintaining our position as a leading international medical research and teaching university. We're recognised for the quality of our graduates, the scale and depth of our research, our commitment to translational research, and as a thriving biotechnology hub.

To learn more about the Faculty, please visit www.monash.edu/medicine.

The **Monash School of Psychological Sciences** is ranked among the best in the world. Its mission is to develop students and research outcomes that will make significant contributions to improving the lives of others both locally and globally. The School will make significant and long-lasting impacts that change the world around us, beginning in infancy and across the lifespan. Drawing on the expertise of our staff and the University's unique research platforms and technology, we will sustain and build on Monash's position with world-class research and training in Psychology.

For more information about us and the work we do, please visit www.monash.edu/medicine/psych.

The **Turner Institute for Brain and Mental Health** is making a difference to the lives of vulnerable populations across Australia and beyond. Housed within the School of Psychological Sciences, the Turner is responding to the grand challenge of mental health by creating a world of mentally healthy communities. We take an inclusive, lifespan and community-based approach to empower all members of society to live well and productively, for longer.

We are the home to world-leading researchers and clinicians who have exceptional capabilities in both discovery science and translation. Our Turner Clinics represent our translational arm and provide psychological services to over 2000 clients across Victoria with a focus on trauma, sleep health, concussion, lifestyle interventions, neurorehabilitation and neurodevelopment. Over the next five years we aim to be the nation's top Institute for preventative mental and brain health.

To learn more, please visit www.monash.edu/turner-institute/research.

POSITION PURPOSE

A Level A research-only academic is expected to contribute towards the research effort of the University and to develop their research expertise through the pursuit of defined projects relevant to the particular field of research.

In this multidisciplinary project, we will employ and extend active inference – a framework for defining how neural networks self-optimize in highly dynamic and uncertain environments – along with *in vitro* neural network recordings to understand the governing principles of learning in biological and artificial neural networks. The project is within a wider collaboration of Associate Professor Adeel Razi with Professor Anil Seth (Sussex), Professor Blake Richards (McGill), Professor Yoshua Bengio (Mila and The University of Montreal) and our industrial partner.

Reporting Line: The position reports to Associate Professor Adeel Razi

Supervisory Responsibilities: Not applicable

Financial Delegation: Not applicable

Budgetary Responsibilities: Not applicable

KEY RESPONSIBILITIES

Specific duties required of a Level A research-only academic may include:

1. The conduct of research under limited supervision either as a member of a team or, where appropriate, independently and the production or contribution to the production of conference and seminar papers and publications from that research
2. Involvement in professional activities including, subject to availability of funds, attendance at conferences and seminars in the field of expertise
3. Limited administrative functions primarily connected with the area of research of the academic
4. Development of a limited amount of research-related material for teaching or other purposes with appropriate guidance from other staff

5. Occasional contributions to teaching in relation to their research project(s)
6. Experimental design and operation of advanced laboratory and technical equipment or conduct of advanced research procedures
7. Attendance at meetings associated with research or the work of the organisational unit to which the research is connected and/or at departmental, school and/or faculty meetings and/or membership of a limited number of committees
8. Advice within the field of the staff member's research to postgraduate students
9. Other duties as directed from time to time

KEY SELECTION CRITERIA

Education/Qualifications

1. The appointee will have:
 - A doctoral qualification, or about to complete one, in Electrical and Biomedical Engineering, Machine Learning, Applied Physics and Mathematics, Computational Neuroscience relevant discipline or a closely related field.

Knowledge and Skills

2. Demonstrated analytical and manuscript preparation skills; including a track record of refereed research publications in computational or mathematical modelling of natural systems, reinforcement learning, active inference, computational neuroscience and relevant areas
3. Ability to solve complex problems by using discretion, innovation and the exercise diagnostic skills and/or expertise
4. Well-developed planning and organisational skills, with the ability to prioritise multiple tasks and set and meet deadlines
5. Excellent written communication and verbal communication skills with proven ability to produce clear, succinct reports and documents
6. A demonstrated awareness of the principles of confidentiality, privacy and information handling
7. A demonstrated capacity to work in a collegiate manner with other staff in the workplace
8. Demonstrated computer literacy and proficiency in the production of high level work using software such as Microsoft Office applications and specified university software programs, with the capability and willingness to learn new packages as appropriate
9. Strong programming ability in either MATLAB, Python or R
10. Some knowledge of Bayesian techniques and Markov decision processes

OTHER JOB RELATED INFORMATION

- Travel to other campuses of the University may be required
- There may be a requirement to work additional hours from time to time
- There may be peak periods of work during which taking of leave may be restricted

GOVERNANCE

Monash University expects staff to appropriately balance risk and reward in a manner that is sustainable to its long-term future, contribute to a culture of honesty and integrity, and provide an environment that is safe, secure and inclusive. Ensure you are aware of and adhere to University policies relevant to the duties undertaken and the values of the University. This is a standard which the University sees as the benchmark for all of its activities in Australia and internationally.