POSITION DESCRIPTION

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School of Chemical and Biomedical Engineering

Melbourne School of Engineering

Research Fellow

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| Position No | 0050135 |
| Classification | Research Fellow (Level A or B) |
| Salary | $91,125 - $97,812 p.a. (Level A)  $102,967 - $122,268 p.a. (Level B)  Appointment based on level of qualification and experience |
| Superannuation | Employer contribution of 9.5% |
| Employment Type | Fixed-term position available for up to two and a half (2.5) years. |
| WORKINg HOURS | Full-time (1.0 FTE) |
| Current Occupant | New |
| How to Apply | Online applications are preferred. Go to [http://about.unimelb.edu.au/careers](http://hr.unimelb.edu.au/careers), under ‘Job Search and Job Alerts’, select the relevant option (‘Current Staff’ or ‘Prospective Staff’), then find the position by title or number. |
| contact For enquiries only | Prof Anthony N. Burkitt Email [aburkitt@unimelb.edu.au](mailto:aburkitt@unimelb.edu.au)  Please do not send your application to this contact |

For information about working for the University of Melbourne, visit our websites:   
about.unimelb.edu.au/careers   
[joining.unimelb.edu.au](http://joining.unimelb.edu.au)

**The University of Melbourne**

Established in 1853, the University of Melbourne is a public-spirited institution that makes distinctive contributions to society in [research](https://research.unimelb.edu.au/), [learning and teaching](https://about.unimelb.edu.au/teaching-and-learning) and [engagement](https://engagement.unimelb.edu.au/). It’s consistently ranked among the leading universities in the world, with international rankings of world universities placing it as number 1 in Australia and number 32 in the world (Times Higher Education World University Rankings 2017-2018). https://about.unimelb.edu.au/strategy/growing-esteem

**Melbourne School of Engineering**

Melbourne School of Engineering (MSE) has been the leading Australian provider of engineering and IT education and research for over 150 years. We are a multidisciplinary School organised into three key areas; Computing and Information Systems (CIS), Chemical and Biomedical Engineering (CBE) and Electrical, Mechanical and Infrastructure Engineering (EMI). MSE continues to attract top staff and students with a global reputation and has a commitment to knowledge for the betterment of society.

Our ten-year strategy, MSE 2025, is our School’s commitment to bring to life the University-wide strategy *Growing Esteem* and reinforce the University of Melbourne’s position as one of the best in the world. Investment in new infrastructure, strengthening industry engagement and growing the size and diversity of our staff and student base to drive innovation and develop the transformative technologies of the future are all fundamental principles underpinning MSE 2025.

<http://www.eng.unimelb.edu.au/about/join-mse/why-join-mse>

**School of** **Chemical and Biomedical Engineering**

The School of Chemical and Biomedical Engineering undertakes teaching and research across a range of disciplines that are internationally recognised for their contribution to fundamental research. It has a number of well-established industry linkages and international partnerships. It is building a vibrant profile of interdisciplinary research, working with industry with an aim to contribute to society. It offers a comprehensive range of accredited Masters of Engineering programs taught through the Chemical and Biomedical departments as well as professional Masters programs. It has a substantial cohort of research higher degree students. A major focus of the school is to attract and retain outstanding and internationally recognised academic staff. The School is committed through strategy, culture and mentorship to increasing the number of female engineers and scientists on its staff.

**Department of Biomedical Engineering**

The Department of Biomedical Engineering is a vibrant community of internationally recognised researchers focused on driving research and education in medical technologies, health informatics and healthcare delivery. Combining the expertise of engineers, biomedical researchers, clinical practitioners and industry partners, we create innovative medical solutions that have societal and economic impact. We have long-standing, strong partnerships with industry and government that support our researchers in conducting high impact research.

The Department offers both PhD and Masters level research degrees.

The Department also contributes to the Bioengineering Systems major in both the [Bachelor of Biomedicine](https://study.unimelb.edu.au/find/interests/engineering/) and [Bachelor of Science](https://study.unimelb.edu.au/find/interests/engineering/). Further information about the Department can be found under [www.bme.unimelb.edu.au](http://www.bme.unimelb.edu.au/)

Position Summary

The Bionics, Biomedical Imaging and Neuroengineering group in the Department of Biomedical Engineering comprises leading internationally recognised researchers. In line with a significant focus on computational neuroscience, in this Research Fellow position you will work on a multidisciplinary project on perception, navigation and spatial awareness, in which the insights and mechanisms from neuroscience and the modelling of neural systems, particularly of vision and other sensory systems, can be analysed and used to inspire applications in autonomous robots and other artificial systems. In this role you will conduct original theoretical research on this theme and test the resulting models and algorithms in neural models. It is anticipated that there will be opportunities to visit and collaborate with other researchers in the research program, including those involved in robotics in both other institutions in both Australia and in Boston, USA.

# Selection Criteria

## Essential

* A PhD in the area of computational neuroscience, neural modelling, bio-signal or statistical signal processing, or an equivalent qualification.
* A record of quality research as evidenced by publications in leading journals and at conferences of computational neuroscience, neural modelling, bio-signal or statistical signal processing, commensurate with opportunity.
* Strong theoretical and analytical skills in formulating, analysing and solving problems.
* A commitment to pursue the research topics of perception, navigation and spatial awareness in neural systems.
* Experience in taking the initiative, working with minimal supervision and prioritising tasks to achieve project objectives within given timelines.
* Demonstrated capacity to communicate research concepts to technical audiences.
* Ability to work as part of a team that includes research students, and junior and senior researchers.
* Good interpersonal and communication skills when interacting with students, researchers, professional staff and external stakeholders.

## Desirable

* Experience with computational simulation of neural systems.
* Experience with the mathematical analysis of neural models.
* Familiarity with sensory processing in neural systems, such as vision and audition.
* Familiarity with concepts associated with the formation of maps in neural systems and their use in localisation and navigation.
* Experience with the implementation of numerical methods and engineering applications of learning techniques in neural systems.

# Key Responsibilities

* 1. **RESEARCH – ADVANCEMENT OF THE DISCIPLINE**
* Conducting fundamental and application-oriented research on perception, navigation and spatial awareness in mathematical and computational models of neural systems.
* Following timelines and milestones in accordance with the research schedule of the project.
* Preparation and publication of top-quality research papers and technical reports.
* Preparation and delivery of technical presentations to technical and non-technical audiences.
* Assistance in the supervision of research and coursework student projects.
  1. **Teaching and learning**
* Contribution to the Department’s teaching program by giving occasional lectures, tutorials and /or laboratory-based classes, and supervision of students.
  1. **ENGAGEMENT**
* Attend and actively contribute to group meetings and department seminars.
* Present research results at local and national meetings and conferences.
* Effective liaison with external networks to foster collaborative research partnerships.
  1. **service and leadership**
* Assist with administrative duties and general duties within the research group, including taking part in research meetings and journal clubs.
* Assist in the preparation and submission of competitive grant applications relating to the appointee’s research program.
* Perform other tasks as requested by the supervisor or the Head of the Department.
* Undertake Occupational Health and Safety (OH&S) and Environmental Health and Safety (EH&S) responsibilities as outlined in Section 4.

# Equal Opportunity, Diversity and Inclusion

The University is an equal opportunity employer and is committed to providing a workplace free from all forms of unlawful discrimination, harassment, bullying, vilification and victimisation. The University makes decisions on employment, promotion and reward on the basis of merit.

The University is committed to all aspects of equal opportunity, diversity and inclusion in the workplace and to providing all staff, students, contractors, honorary appointees, volunteers and visitors with a safe, respectful and rewarding environment free from all forms of unlawful discrimination, harassment, vilification and victimisation. This commitment is set out in the University’s People Strategy 2015-2020 and policies that address diversity and inclusion, equal employment opportunity, discrimination, sexual harassment, bullying and appropriate workplace behaviour. All staff are required to comply with all University policies.

The University values diversity because we recognise that the differences in our people’s age, race, ethnicity, culture, gender, nationality, sexual orientation, physical ability and background bring richness to our work environment. Consequently, the People Strategy sets out the strategic aim to drive diversity and inclusion across the University to create an environment where the compounding benefits of a diverse workforce are recognised.

# Occupational Health and Safety (OHS)

All staff are required to take reasonable care for their own health and safety and that of other personnel who may be affected by their conduct.

OHS responsibilities applicable to positions are published at:

<http://safety.unimelb.edu.au/topics/responsibilities/>

These include general staff responsibilities and those additional responsibilities that apply for Managers and Supervisors and other Personnel.