POSITION DESCRIPTION

THE UNIVERSITY OF MELBOURNE

Department of Biomedical Engineering
Melbourne School of Engineering

Research Fellow in Epilepsy Modelling

POSITION NO	0047012
CLASSIFICATION	Research Fellow (Level A)
SALARY	$69,148*- $93,830 p.a. (*PhD entry Level A.6 $87,415)
SUPERANNUATION	Employer contribution of 9.5%
EMPLOYMENT TYPE	Full-time (fixed-term) position available for up to 3 years The Melbourne School of Engineering is strongly committed to supporting diversity and flexibility in the workplace. Applications for part-time or other flexible working arrangements will be welcomed and will be fully considered subject to meeting the inherent requirements of the position.
OTHER BENEFITS	http://about.unimelb.edu.au/careers/working/benefits
HOW TO APPLY	Online applications are preferred. Go to http://about.unimelb.edu.au/careers, select the relevant option ('Current Staff' or 'Prospective Staff'), then find the position by title or number.
LOCATION	Parkville campus *This position may be required to travel to and work across multiple campuses*
CONTACT FOR ENQUIRIES ONLY	Professor David B. Grayden Email grayden@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

The University of Melbourne

Established in 1853, the University of Melbourne is a public-spirited institution that makes distinctive contributions to society in research, learning and teaching and engagement. 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).

To discover more about the University's strategy, *Growing Esteem*, visit:
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

Department of Biomedical Engineering

biomedical.eng.unimelb.edu.au

The Department of Biomedical Engineering is a vibrant and rapidly growing department within the Melbourne School of Engineering, working on some of the most challenging problems at the interface of engineering with life and medical sciences. The central aim of the Department is to apply interdisciplinary expertise and thinking to make new discoveries and provide innovative solutions that will improve healthcare and social wellbeing.

Our research covers a breadth of areas in biomaterials and tissue engineering; biomechanics and mechanobiology; bionics and neuroengineering; medical imaging; and systems and synthetic biology. We have strong national and international linkages with industry, hospitals, research institutes, and universities.

Position Summary

The University of Melbourne is seeking a postdoctoral research fellow to join the ARC Training Centre in Cognitive Computing for Medical Technologies. In this position, you will be an active member of the Centre, collaborating with other researches and key contributors and partners. The ARC Training Centre in Cognitive Computing for Medical Technologies aims to create a workforce that is expert in developing, applying, and interrogating artificial intelligence technologies in data-intensive medical contexts. This will facilitate the next generation of data-driven and machine learning-based medical technologies. The Centre will provide a world-class industry-driven research training environment for PhD students and postdoctoral researchers. These researchers will lead the medical technology industry into a new era of data-driven personalised and precision medical devices and applications. The Centre will result in the development of capabilities in the core technologies of machine learning and the practical application of cognitive computing in the area of health.

This project aims to bring together neural models of the brain with machine learning to study and treat epilepsy. This project will develop patient-specific neural field models and neural mass models that replicate recorded EEG signals with high fidelity. The underlying model states and parameters will be used as inputs to machine learning algorithms to predict seizures and to elucidate the underlying mechanisms of epilepsy. This combined approach will help us to understand the causes and behaviours of epileptic seizures and build high fidelity models for epileptic seizure prediction.

You will undertake research of high quality that contributes to the completion of the project aims. You will lead the preparation and publication of research outcomes in conferences and journals and lead presentations on the project outcomes to a variety of industry partners. As a Research Fellow you may also undertake teaching and research supervision directly related to your area of research, when it is required.

1. Selection Criteria

1.1 ESSENTIAL

- PhD in Biomedical Engineering, Electrical Engineering, Mathematics, Computer Science, or equivalent;
- Strong background in computational neuroscience and machine learning;
- Excellent programming skills;
- A record of quality research as evidenced by publications in leading journals and at conferences commensurate with opportunity;
- Ability to perform independent research and a commitment to interdisciplinary research;
- Experience in working with minimal supervision, and ability to prioritise tasks to achieve project objectives within timelines;
- Demonstrated capacity to communicate research concepts to technical and non-technical audiences;

- Excellent written and verbal communication skills, demonstrated by presentation of research results at conferences, internal forums and through manuscript submissions;
- Excellent interpersonal skills, including an ability to interact with internal and external stakeholders (academic, administrative and support staff) in a courteous and effective manner.

1.2 DESIRABLE

- Background in application of machine learning and computational neuroscience to real-world problems using EEG data.

2. Key Responsibilities

- Independently plan and carry out research on the nominated research project and work towards completion of the aims of the project;
- Develop effective timelines and milestones based on goals of the research program;
- Liaise effectively with collaborators with a variety of internal and external stakeholders;
- Assist other researchers in carrying out experiments in order to work as a team and further the centres research output;
- Prepare and publish research outcomes in conferences and journals;
- Conduct presentations to a broad audience, including key industry partners;
- Provide strong mentorship through the co-supervision of 1-2 PhD students;
- Attend and actively participate in departmental seminars, meetings and/or committee memberships.

3. 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 as vital in our continuous desire to strive for excellence and reach the targets of Growing Esteem.

4. 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.