



POSITION DESCRIPTION

School of Chemical and Biomedical Engineering
Faculty of Engineering and Information Technology

Research Fellow in Biomedical Engineering

(Musculoskeletal Biomechanics with Machine Learning)

POSITION NO	0057562
CLASSIFICATION	Level A or Level B (commensurate with experience)
SALARY	Level A: \$77,171 - \$104,717 p.a. (\$97,558 for PhD entry level) Level B: \$110,236 - \$130,900 p.a.
SUPERANNUATION	Employer contribution of 17%
WORKING HOURS	Full-time <i>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</i>
BASIS OF EMPLOYMENT	Fixed-term for 2 years
OTHER BENEFITS	https://about.unimelb.edu.au/careers/staff-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.
CONTACT FOR ENQUIRIES ONLY	Professor Peter Vee Sin Lee Tel +61 3 8344 4426 Email pvee@unimelb.edu.au <i>Please do not send your application to this contact</i>

For information about working for the University of Melbourne, visit our websites:
about.unimelb.edu.au/careers

Acknowledgement of Country

The University of Melbourne acknowledges the Traditional Owners of country throughout Australia. The University recognises the unique place held by Aboriginal and Torres Strait Islander peoples as the original custodians of country and their continued connection to the land, waterways, songlines and culture. The University respects all Aboriginal and Torres Strait Islander People and warmly embrace those students, staff, Elders and collaborators who identify as First Nations.

Commitment to Diversity and Inclusion

The Faculty of Engineering and Information Technology (FEIT) is committed to creating a diverse and inclusive environment that welcomes and values all people. We recognise that diversity is essential in contributing to the success of FEIT. Women, Aboriginal and Torres Strait Islanders, the LGBTIQ+ community, people living with disability and those from a culturally and linguistically diverse background, are strongly encouraged to apply. Those seeking support in submitting an application are welcome to contact the Faculty HR team at feit-hr@unimelb.edu.au

Position Summary

Our innate immune system is the first responder to the detection of threat of diverse origins. This molecular pattern recognition capability is our ultimate integrated surveillance and response system, which has been under active evolutionary development for millions of years. Detecting and responding to threats requires knowledge of immune system to brain events and how they interact with the physical function of the human body.

Working with the University of Melbourne and the Defence Community, this Research Fellow position will involve development of knowledge and technology to detect changes in human movement as a result of an immune system response. The position will work with biomedical and software engineers to carry out biomechanics experiments designed to evaluate patterns of human movement biomechanics using machine learning techniques. This will include human movement data collection experiments with wearables and other sensors, modelling and data analytics. The role is responsible for conducting independent research, leading to the preparation and publication of research outcomes in conferences and journals as well as liaising with defence collaborators and partners.

1. Selection Criteria

1.1 ESSENTIAL

- ▶ A PhD or equivalent degree in mechanical engineering, biomedical engineering, or a related discipline.
- ▶ Capacity to undertake data analytics, with demonstrated experience in machine learning, including artificial neural networks.
- ▶ Familiarity with human movement modelling and experimentation concepts.
- ▶ Demonstrated capacity to communicate research concepts to technical and non-technical audiences.
- ▶ Excellent ability to analyse data, problem solve and maintain accurate research records.
- ▶ Capability for innovative research, as evidenced by scholarly publication.
- ▶ Excellent ability to work co-operatively in a multi-disciplinary team environment and liaise with associates from both industry and academia.
- ▶ Demonstrated experience in using initiative, working with minimal supervision and ability to prioritise tasks to achieve project objectives within timelines.
- ▶ Excellent written and verbal communication skills, demonstrated by presentation of research results at conferences, internal forums and through manuscript submissions.

1.2 ADDITIONAL ESSENTIAL CRITERIA FOR APPOINTMENT AT LEVEL B

At Research Fellow Level B, the successful applicant must demonstrate all of the above, and additionally must demonstrate:

- ▶ Demonstrated ability to perform independent research and a commitment to interdisciplinary research.
- ▶ Demonstrated ability to develop new experimental protocols and experience in troubleshooting protocols.
- ▶ Demonstrated ability to work with limited supervision in a self-directed manner and as a member of a research team.

- ▶ Demonstrated ability to undertake human movement modelling and experimentation with human subjects, as evidenced by research publications in leading conferences and journals commensurate with opportunity.
- ▶ Demonstrated experience with statistical modelling.

1.3 DESIRABLE

- ▶ Experience in the implementation of biomechanics experiments
- ▶ Experience in the completion of ethics applications and submission of grant applications.
- ▶ Experience in supervision of students and/or research assistants.

2. *Special Requirements*

- ▶ The applicant must be an Australian citizen who is able to obtain a baseline security clearance, then subsequently obtain and maintain an NV1 security clearance as determined by the Department of Defence
<https://www.defence.gov.au/security/clearances>

3. *Key Responsibilities*

The position description should be read alongside the Academic Career Benchmarks

A level A academic is acquiring skills and building academic achievements (oriented towards the benchmarks).

3.1 RESEARCH – ADVANCEMENT OF DISCIPLINE

- ▶ 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 project.
- ▶ Perform experimental and computational analyses taking responsibility for qualitative and statistical analysis of research data and to communicating this information to the Chief Investigators and collaborators.
- ▶ Complete technical reports on the outputs of the experiments conducted and maintain accurate and detailed records of all experiments conducted.
- ▶ Participate in preparation of manuscripts for publication in peer-reviewed journals.
- ▶ 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 department's research output.
- ▶ Contribute to the development of the Department's and the School's strong research program in biomedical engineering.
- ▶ Work towards building an independent research project.

3.2 TEACHING AND LEARNING

- ▶ Contribute to teaching, training and scientific mentoring.
- ▶ Supervise junior research staff in the appointee's area of expertise.

3.3 ENGAGEMENT

- ▶ Attend and contribute actively to lab meetings.
- ▶ Present experimental and computational results at local, national and international forums.
- ▶ Attend and actively participate in departmental seminars, meetings and/or committee memberships.

3.4 SERVICE AND LEADERSHIP

- ▶ Assist with administrative duties and general laboratory duties including maintenance of the laboratory and equipment and ordering of supplies.
- ▶ Assist in the preparation and submission of competitive grant applications relating to the research program.
- ▶ Undertake Occupational Health and Safety (OH&S) and Environmental Health and Safety (EH&S) responsibilities as outlined in Section 4.

IN ADDITION TO THE ABOVE, EXPECTATIONS FROM A LEVEL B ACADEMIC ARE:

- ▶ Produce regular reports, conference and seminar papers and publications associated with the research project.
- ▶ Generate conference papers for presentation at national and international conferences.
- ▶ Develop independent research and apply for grants.
- ▶ Undertake responsibility for the general oversight of grants associated with the research.
- ▶ Contribute to promotion and maintenance of academic excellence by supporting activities such as the Departmental seminar series.
- ▶ Initiate, manage and maintain significant inter-departmental and institutional collaborations.
- ▶ Assist other researchers in carrying out experiments in order to work as a team and further the Department's research output.
- ▶ Plan experimental programs for Research Fellows, students and Research Assistants and effectively supervise or co-supervise honours or postgraduate research projects within research area.

4. Other Information

4.1 SCHOOL OF CHEMICAL AND BIOMEDICAL ENGINEERING

<https://eng.unimelb.edu.au/about/departments/school-of-chemical-and-biomedical-engineering>

The School of Chemical and Biomedical Engineering encompasses both the Department of Chemical Engineering and the Department of Biomedical Engineering. This fusion of engineering disciplines provides a dynamic and interdisciplinary environment that is world leading in both research and teaching.

DEPARTMENT OF BIOMEDICAL ENGINEERING

<https://biomedical.eng.unimelb.edu.au/>

The Department of Biomedical Engineering is a vibrant and rapidly growing department within 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, biomedical imaging and neuroengineering; systems and synthetic biology. We have strong national and international linkages with industry, hospitals, research institutes, and universities.

We teach students within the Bioengineering Systems undergraduate majors in the Bachelor of Science and the Bachelor of Biomedicine and offer two Masters programs: Master of Engineering (Biomedical) and Master of Engineering (Biomedical with Business).

4.2 FACULTY OF ENGINEERING AND INFORMATION TECHNOLOGY

The Faculty of Engineering and Information Technology (FEIT) 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). FEIT continues to attract top staff and students with a global reputation and has a commitment to knowledge for the betterment of society.

FEIT has never been better positioned as a global leader, anchored in the dynamic Asia Pacific region, creating and curating knowledge to address some of the world's biggest challenges. Through our students and our relationships with communities, we can not only respond to society's needs but anticipate and create engineering and IT solutions for the future.

<https://eng.unimelb.edu.au/>

<https://eng.unimelb.edu.au/about/join-feit>

Our ten-year strategy, FEIT 2025, is our School's commitment to bring to life the University-wide strategy Advancing Melbourne and reinforce the University of Melbourne's position as one of the best in the world.

To achieve our ambitions, we will continue to build new infrastructure to enable our teaching, research and engagement; we continue to recruit outstanding people from around the world; and we continue to attract high-quality students from across the globe who are at the heart of our enterprise.

<https://eng.unimelb.edu.au/about/mse-2025>

4.3 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).

The University's 10-year strategy, *Advancing Melbourne* will enable the University to contribute to advancing the state and national interest and make vital contributions to Australia's standing on the world stage. We seek to be a leading force in advancing Australia as an ambitious, forward-thinking country while increasing its reputation and influence globally. <https://about.unimelb.edu.au/strategy/advancing-melbourne>

Further information about working at The University of Melbourne is available at <http://about.unimelb.edu.au/careers>

4.4 ADVANCING MELBOURNE

The University's strategic direction is grounded in its purpose. While its expression may change, our purpose is enduring: to benefit society through the transformative impact of education and research. Together, the vision and purpose inform the focus and scale of our aspirations for the coming decade.

Advancing Melbourne reflects the University's commitment to its people, its place, and its partners. Our aspiration for 2030 is to be known as a world-leading and globally connected Australian university, with our students at the heart of everything we do.

- We will offer students a distinctive and outstanding education and experience, preparing them for success as leaders, change agents and global citizens.
- We will be recognised locally and globally for our leadership on matters of national and global importance, through outstanding research and scholarship and a commitment to collaboration.
- We will be empowered by our sense of place and connections with communities. We will take opportunities to advance both the University and the City of Melbourne in close collaboration and synergy.
- We will deliver this through building a brilliant, diverse and vibrant University community, with strong connections to those we serve.

The means for achieving these goals include the development of the University of Melbourne's academic and professional staff and the capabilities needed to support a modern, world-class university. Those means require a commitment to ongoing financial sustainability and an ambitious infrastructure program which will reshape the campus and our contribution to the communities we engage with. This strategy, and the priorities proposed, is centred around five intersecting themes; place, community, education, discovery and global.

4.5 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 Advancing Melbourne strategy that addresses 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 Advancing Melbourne.

4.6 GOVERNANCE

The Vice Chancellor is the Chief Executive Officer of the University and responsible to Council for the good management of the University.

Comprehensive information about the University of Melbourne and its governance structure is available at <https://about.unimelb.edu.au/strategy/governance>

4.7 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:

<https://safety.unimelb.edu.au/people/community/responsibilities-of-personnel>

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