School of Electrical, Mechanical and Infrastructure Engineering
Faculty of Engineering and Information Technology

Postdoctoral Research Fellow in Computational Mechanics

POSITION NO 0047498

CLASSIFICATION Level A

SALARY $75,289 to $102,163 (pro rata for part-time)

SUPERANNUATION Employer contribution of 17%

WORKING HOURS Full Time (1.0 FTE) – please note that 0.5 FTE is employed by the University of Melbourne and 0.5 FTE is employed by the University of New South Wales

BASIS OF EMPLOYMENT Fixed term for 2½ 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 Opportunities’ or ‘Jobs available to current staff’), then find the position by title or number.

CONTACT FOR ENQUIRIES ONLY Professor Graham Schaffer
Tel +61 3 8344 6863
Email graham.schaffer@unimelb.edu.au

Please do not send your application to this contact

For information about working for the University of Melbourne, visit our website: 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 the Faculty. 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 HR team at feit-hr@unimelb.edu.au

Position Summary
This is an exciting opportunity for a Research Fellow to join our interdisciplinary team consisting of leading engineers from The University of Melbourne, the University of New South Wales and the Defence Science and Technology Group. The project will focus particularly on the development of a mechanical model to predict the fatigue properties of titanium alloys for additive manufacturing processed by powder-bed laser melting. This will enable prediction of the cyclic mechanical properties of Ti-6Al-4V from the microstructure.

To be successful, you will have high level of experience and expertise in computational modelling (finite element – crystal plasticity) of polycrystalline materials, and good knowledge of fatigue crack growth and fatigue endurance.

You will conduct independent research leading to patents and publications in journals and conferences. You may undertake small amounts of teaching and research supervision directly related to your area of research, as required.

This is a joint appointment between The University of Melbourne (Department of Mechanical Engineering) and the University of New South Wales (School of Mechanical and Manufacturing Engineering), with simultaneous appointments at both Universities. Your primary physical location can be either Melbourne or Sydney with regular travel between the two universities.

1. Selection Criteria

1.1 ESSENTIAL

- A PhD in Mechanical or Materials Engineering, or a closely related discipline.
- Experience in computational mechanics (such as finite element analysis).
- A demonstrated record of high-quality research.
Excellent written and verbal communication skills, demonstrated by presentation of research results at conferences, internal forums, theses and published papers.

Excellent interpersonal skills and the ability to work both independently and as part of a team.

1.2 DESIRABLE

Experience in the simulation of selective laser melting, titanium and fatigue.

1.3 OTHER

Due to project requirements, the incumbent must hold Australian citizenship.

2. Key Responsibilities

2.1 CONTRIBUTION TO TEACHING AND LEARNING

Contribute to teaching, training, scientific mentoring and supervision of students as required

2.2 RESEARCH AND ADVANCEMENT OF DISCIPLINE

Working with the Chief Investigators, develop the research plan based on the goals of the research programme, including effective timelines and milestones.

Independently carry out research on the nominated research project and work towards completion of the aims of the project.

Maintain accurate and detailed records of all research conducted.

Contribute to the analysis of the research data.

Regularly write technical reports on the research conducted.

Participate in the preparation of manuscripts for publication in peer-reviewed journals.

Liaise effectively with collaborators and a variety of internal and external stakeholders.

2.3 ENGAGEMENT

Effective collaboration with the research sponsor and research partners.

Active participation in some outreach activities relating to research and scholarship.

Effective liaison with external networks to foster collaborative partnerships.

Involvement in professional activities.

Present results at national and international forums.

Attend and actively participate in departmental seminars, meetings and/or committee memberships.

2.4 LEADERSHIP AND SERVICE

Active participation in the communication and dissemination of research.
Identify sources of funding to support individual or collaborative projects, relating to teaching, research and engagement practice in the discipline.

2.5 OTHER JOB RELATED INFORMATION

- Perform other tasks as requested by the supervisor or the Head of the Department.
- Undertake Occupational Health and Safety (OH&S) responsibilities as outlined in Section 4.
- Occasional work out of ordinary hours to travel between Sydney and Melbourne as required.
- Employment in this position is conditional upon receipt and maintenance of a Working with Children Check.

3. Equal Opportunity, Diversity and Inclusion

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 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.

Employees are required to behave in a manner that creates; supports and encourages an inclusive and safe work environment for all.

https://eng.unimelb.edu.au/diversity

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:

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.

5. Other Information

DEPARTMENT OF MECHANICAL ENGINEERING

http://www.mech.unimelb.edu.au

The Department of Mechanical Engineering is one of the largest in Australia. The School provides teaching into subjects in the three-year undergraduate degrees of Science and Commerce, which can be followed by a two-year professional Master of Engineering.
The Department aims to attract and retain the highest quality staff available in order to maintain a vigorous research effort. We address the most urgent contemporary problems of our rapidly developing industrial society, with investigations into biomechanical engineering, fluid mechanics and thermal sciences.

SCHOOL OF ELECTRICAL, MECHANICAL AND INFRASTRUCTURE ENGINEERING

The School of Electrical, Mechanical and Infrastructure Engineering (EMI) undertakes teaching and research across a range of disciplines that are internationally recognised for their contribution to fundamental research. EMI has several well-established industry linkages and international partnership and is building a vibrant profile of interdisciplinary research, working with industry with an aim to contribute to society. EMI offers a comprehensive range of accredited Master of Engineering and Master of Information Technology programs taught through the Electrical, Mechanical and Infrastructure departments as well as professional Masters programs. The School 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. EMI is committed to increasing the number of female engineers and scientists on its staff.

5.1 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 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/feit-2025

5.2 THE UNIVERSITY OF MELBOURNE
Established in 1853, the University of Melbourne is a leading international university with a tradition of excellence in teaching and research. The main campus in Parkville is recognised as the hub of Australia’s premier knowledge precinct comprising eight hospitals, many leading research institutes and a wide-range of knowledge-based industries. With outstanding performance in international rankings, the University is at the forefront of higher education in the Asia-Pacific region and the world.

The University employs people of outstanding calibre and offers a unique environment where staff are valued and rewarded.

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