



Position Description – Research Fellow

Position Details

Position Title:	Research Fellow
College/Portfolio:	STEM College
School/Group:	School of Engineering
Campus Location:	Based at Bundoora West campus but may be required to work and/or be based at other campuses of the University.
Classification:	Academic Level B
Employment Type:	Fixed Term (Research)
Time Fraction:	1.0 FTE

RMIT University

RMIT is a multi-sector university of technology, design and enterprise with more than 96,000 students and close to 10,000 staff globally. The University's mission is to help shape the world through research, innovation and engagement, and to create transformative experiences for students to prepare them for life and work.

<https://www.rmit.edu.au/about>

<https://www.universitiesaustralia.edu.au/university/rmit-university/>

Our three main campuses in Melbourne are located in the heart of the City, Brunswick and Bundoora. Other locations include Point Cook, Hamilton and Bendigo, two campuses in Vietnam (Hanoi and Ho Chi Minh City) and a centre in Barcelona, Spain. RMIT is a truly global university.

<https://www.rmit.edu.au/about/our-locations-and-facilities>

We are also committed to redefining our relationship in working with, and supporting, Indigenous self-determination. Our goal is to achieve lasting transformation by maturing our values, culture, policy and structures in a way that embeds reconciliation in everything we do. We are changing our ways of knowing, working and being to support sustainable reconciliation and activate a relationship between Indigenous and non-Indigenous staff, students and community. Our three campuses in Melbourne (City, Brunswick and Bundoora campuses) are located on the unceded lands of the people of the Woi Wurrung and Boon Wurrung language groups of the eastern Kulin Nation.

Why work at RMIT University

Our people make everything at the University possible. We encourage new approaches to work and learning, stimulating change to drive positive impact. Find out more about working at RMIT University, what we stand for and why we are an Employer of Choice.

<https://www.rmit.edu.au/careers>

We want to attract those who will make a difference. View RMIT's impressive standings in university rankings.

<https://www.rmit.edu.au/about/facts-figures/reputation-and-rankings>

STEM College

The STEM College holds a leading position and expertise in the science, technology, engineering, mathematics and health (STEM) fields. We are uniquely positioned to influence and partner with industry, as never before.

STEM College is a community of exceptional STEM researchers, teachers, inventors, designers and game-changers, supported by talented professional staff. We offer higher education programs across all STEM disciplines at the Bachelor, Master and PhD levels, and ensure our students experience an education that is work-aligned and life-changing.

The College is renowned for its exemplary research in many STEM areas including advanced manufacturing and design; computing technologies; health innovation and translational medicine; nano materials and devices; and sustainable systems. Our brilliant researchers attract funding from government and industry sources.

Industry is at the heart of what we do. It ensures our research has real world impact, and our students are truly work-ready. Under the leadership of DVC STEM College & Vice President, Digital Innovation, we have established new hubs of industry-connected digital innovation and endeavour and are engaging with global STEM organisations at scale.

Our diversity and shared values empower our work, and we are proud of the College's inclusive, caring culture. We offer a safe, dynamic work environment, and support every member of our community to achieve their potential. The College appointed Victoria's first ever Dean of STEM, Diversity & Inclusion in 2020, and this role drives gender equity, diversity and inclusion strategies across the College.

STEM College employs 1,000 staff who deliver onshore and offshore programs to approximately 20,000 students.

We are here to positively impact the world and create the next generation of STEM leaders.

www.rmit.edu.au/seh

School of Engineering

The School of Engineering is one of the largest Engineering Schools in Australia. It has over 350 staff and 7000 students, including 750 HDR students. The School is committed to driving innovation and collaboration through our industry partnerships. Our industry partners range from small companies to multinational organisations and we work together on translating our research into impact for our partners and the wider community.

The School has six Departments:

- Aerospace Engineering
- Biomedical Engineering
- Chemical and Environmental Engineering
- Civil and Infrastructure Engineering
- Electrical and Electronic Engineering
- Mechanical, Manufacturing and Mechatronics Engineering

In 2023 the School developed a new strategic plan, which will see an increasing emphasis on engagement with industry and other external partners. The School is developing new industry led degrees, where our students learn whilst working for companies, as well as innovation hubs where we will co-locate industry partners, our research teams and our undergraduate students.

Over the next three to five years the School of Engineering will support these new strategic plans through investments in new facilities. This will include reimaging our teaching laboratories, where we will use new digital technologies to enhance the student experience, as well as research labs where partnerships with industry will enable us to maintain leading research facilities. The STEM College is also developing plans for a large new building in the Melbourne City Campus, and the School of Engineering is expected to hold significant space in this new building.

RMIT is a global university, and the School of Engineering has students and research partners across South East Asia and Europe. This includes two campuses in Vietnam, as well as partnerships in Hong Kong, Singapore and we recently entered into a partnership with the Birla Institute of Technology and Science in India. The School also has a research centre in Barcelona, which provides access to European funding and industry partners. The School will continue to grow our international activities with the aim of becoming a globally connected School that translates technologies and training across continents.

Position Summary

The Research Fellow will work with research teams and partnerships in the School and Research Institutes. You will be required to undertake research activities in line with the University's research strategy. In this position you will carry out independent and/or team research which has a significant impact in the area of your specialisation and be acknowledged at a national level as being influential in expanding the knowledge of your relevant discipline.

As the Research Fellow, you are expected to plan, develop and engage in high quality research projects that are aligned with the University's research focus areas. You will embed your research expertise into the life of the School through the development of high-quality, productivity-driven research networks across RMIT and with local and national, internal and external partners. You will be expected to engage in high quality research projects, to achieve success in attracting research funding and to produce high quality outputs.

The degeneration of adjacent intervertebral discs (IVDs) is a significant clinical concern following total disc replacement (TDR). Traditionally, this issue has been attributed to mechanical load alterations post-implantation. However, emerging evidence suggests that wear particles from spinal implants may also contribute to the degeneration of adjacent IVDs. The precise impact of wear particles on healthy IVD degeneration remains unclear, and the biological response of healthy IVD cells to such particles is yet to be fully elucidated. To address this critical gap, two primary challenges must be overcome:

Lack of Clinically-Relevant Wear Particle Generation Protocols: Currently, there are no established in vitro protocols to generate wear particles that accurately mimic those produced in vivo across various biomaterials used in spinal implants.

Limitations of Current Culture Models: Existing 2D and 3D cell culture models do not sufficiently replicate the structural complexity and material gradient of native IVDs, making them physiologically irrelevant for studying wear particle interactions. Animal models, while commonly used, are costly and fail to fully capture the human IVD's biomechanics and biological responses. Similarly, human cadaveric IVDs often exhibit degenerative changes, preventing accurate representation of healthy IVD biology.

Our research group has recently developed a novel physiologically-relevant in vitro micro-platform that closely recapitulates the native IVD structure and stiffness gradients, enabling advanced wear particle mechanobiological investigations. This project aims to further refine and implement this platform to facilitate precise, cost-effective in vitro studies, addressing the limitations of existing methodologies.

Reporting Line

Reports to: Prof Joanne Tipper

Organisational Accountabilities

RMIT University is committed to the health, safety and wellbeing of its staff. RMIT and its staff must comply with a range of statutory requirements, including equal opportunity, occupational health and safety, privacy and trade

practice. RMIT also expects staff to comply with its policy and procedures, which relate to statutory requirements and our ways of working.

Appointees are accountable for completing training on these matters and ensuring their knowledge and the knowledge of their staff is up to date.

Key Accountabilities

1. Conduct high quality research individually or as part of a team including: managing research projects within timelines and budget and ensuring compliance with quality and reporting requirements; publishing research results in high quality outlets as lead or co-author; preparing and submitting external research funding applications; and supervising higher degree by research candidates.
2. Actively contribute to the development of research strategy within the research team, ensuring it aligns to University strategy.
3. Undertake 10% teaching and learning program appropriate to areas of expertise.

Key Selection Criteria

1. Evidence of experience in mechanobiology, cell biology and advances material processing and characterisation is required. Experience in microfabrication and microfluidics is highly desirable.
2. Emerging track record and recognition for quality research outputs which will contribute to existing Discipline and School research areas evidenced by publications, development of new research initiatives, competitive research funding, and industry links.
3. Demonstrated ability to supervise higher degree by research candidates.
4. Ability to build effective networks with colleagues and generate alternative funding projects through effective liaison with industry and government.
5. Excellent interpersonal and communication skills appropriate for interacting with higher degree by research candidates, staff and industry, together with a strong commitment to teamwork and multidisciplinary collaboration.

Qualifications

Mandatory: PhD or equivalent¹ in relevant field.

Note: Appointment to this position is subject to passing a Working with Children Check and other checks as required by the specific role. Maintaining a valid Working With Children Check is a condition of employment at RMIT.

¹ Equivalence is defined in the exemption criteria at **Appointment of staff without Doctoral qualifications** instruction