Position Description – Fellow (Level A)

Position Details

Position Title: Research Fellow (Level A) - AI for end-of-life EV battery repurposing

College/Portfolio: STEM

School/Group: Engineering / Dept of Electrical and Electronic Engineering

Campus Location: Primarily based at City campus, and the potential to work across other RMIT campuses as required.

Classification: Academic Level A
Time Fraction: 1.0 FTE

Employment Type: Fixed Term for 30 months

Fixed Term Reason: **Research**

Reporting Line: Distinguished Professor Mahdi Jalili

No. of Direct reports: -

RMIT University

RMIT is a global university of technology, design and enterprise, committed to creating transformative experiences for students and making a meaningful impact through research, innovation, and engagement.
For more information on RMIT University follow the links below.

https://www.rmit.edu.au/about
https://www.universitiesaustralia.edu.au/university/rmit-university/
https://www.rmit.edu.au/about/facts-figures

Our campuses in Melbourne (City, Brunswick, Bundoora, and Point Cook) are complemented by international campuses in Vietnam and a centre in Barcelona, Spain. We proudly acknowledge the Woi Wurrung and Boon Wurrung peoples of the eastern Kulin Nation on whose unceded lands our campuses are located.

We are deeply committed to reconciliation and Indigenous self-determination, embedding these values throughout our policies, culture and structures.

Why work at RMIT University

Our people are at the heart of everything we do. At RMIT, we value innovation, collaboration and impact. Our values are the heart (durrung) of who we are and what we stand for at RMIT. They guide what we do, how we make decisions, and how we treat each other.

Inclusion Imagination Integrity Courage Passion Impact

Learn more about our values: https://www.rmit.edu.au/about/our-strategy/values

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.

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 budling 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.

Department of Electrical and Electronic Engineering

The Department of Electrical & Electronic Engineering is one of the largest departments in the university. The department includes internationally renowned academics recognised for their fundamental and original contributions to the field and is highly successful in acquiring large amount of research grants supporting more than 50 researchers. The key research areas in the department include photonics, sensors & electronic, power & automation/control, and communication & networks.
The Department offers three key undergraduate single degree programs; “Electrical Engineering’, ‘Electronic & Computer Engineering’ and ‘Software Engineering’; two double degree undergraduate programs and three postgraduate degree programs. The teaching areas in the programs range from

- electrical, power, control and automation,
- analog and digital electronics,
- embedded, computer and software
- communication and networks

The Department also delivers offshore teaching programs in Hong Kong and India. The department has a wide range of industry partnerships ranging from funded research projects, work integrated learning, student placements and student project co-supervisions. Our graduates are highly regarded by the industry for having extensive hands-on experience and practical knowledge delivered through our teaching programs using a vast range of state of the art laboratory facilities.

Position Summary

The Research Fellow will work with research teams and partnerships in the School and Research Institutes. The potential candidate is required to undertake project research and development activities in line with the University’s research strategy. The position will carry out independent and/or team research and development which has a significant impact in the area of their specialisation and be acknowledged at a national level as being influential in expanding the knowledge of their relevant discipline.

This position is funded by the Cooperative Research Centres Projects (CRC-P) Grants project and will involve second hand battery repurposing using AI-powered automation in line with the agreed project description. The potential candidate will embed their 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. The potential candidate will be expected to engage in high quality research projects, to achieve success in attracting research funding and to produce high quality outputs.

Reporting Line

Reports to: Distinguished Professor Mahdi Jalili

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.

RMIT is committed to providing a safe environment for children and young people in our community. Read about our commitment and child safe practices. https://www.rmit.edu.au/about/our-locations-and-facilities/facilities/safety-security/child-safety

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. Undertake research and development activities in end-of-life Lithium-ion battery repurposing using AI-powered automation. The activities may involve developing AI algorithms for robotic disassembly, design robotic prototypes and testing modules, laboratory validation of robotic and AI systems.

2. Collaborate with other project team members to deliver the project outcomes.

3. Development of AI algorithms to enable robotic disassembly of Lithium-ion battery, incorporating computer vision and machine learning for automated recognition of cell formats, pack configurations, and safety hazards. Algorithms will include fault detection models to prevent fire and explosion risks.

4. Develop collaborations with national and international researchers, particularly focussing on linkages in the areas related to batteries and electric vehicles.

5. Contribute to the successful project management of the research by completing assigned work at the required level and within agreed timeframes.

6. Participate in annual work planning and performance management processes.

8. Perform other duties that may be required for the efficient operation of the research team.

Key Selection Criteria

1. Previous experience in research related to the project (robotic systems and/or battery systems).
2. Demonstrate ability to clearly communicate project results, concepts and knowledge.
3. Demonstrated initiative in research and problem solving.
4. Evidence of research engagement.
5. Experience of hardware-based testing on lab scale for developed simulation schemes.
6. Demonstrated ability to work effectively both as a member of a research team and independently when required, to meet project outcomes and milestones.

Qualifications

Mandatory: Qualifications in robotics, machine learning or other relevant disciplines.

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.

Endorsed:	Signature: Name: Title: Date:	**Approved:**	Signature: Name: Title: Date: