Position Description – Research Assistant – Electronics Engineer

Position Details

Position Title: Research Assistant – Electronics Engineer

College/Portfolio: STEM College

School/Group: School of Engineering

Campus Location: Based at the City campus, however may be required to work and/or be based at other campuses of the University.

Classification: Academic Level A

Employment Type: Fixed Term – Research

Time Fraction: 1.0 FTE

RMIT University

RMIT is a multi-sector university of technology, design and enterprise. 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. 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 three main campuses in Melbourne are located in the heart of the City, Brunswick, Bundoora and Point Cook, along with other Victorian locations. There are also 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

College/Portfolio/Group

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

Position Summary

The Research Assistant will work as a part of a team within the Department of Electrical and Electronic Engineering in the School of engineering to develop of photonic chip building blocks for spectral broadening and wavelength conversion of optical frequency combs.

The work will include designing, fabricating, testing and integrating nonlinear optical components that include dispersion engineering and periodic poling to convert pulses from a seed frequency comb into octave spanning frequency combs and the characterisation of these frequency combs in the electronic domain. This project will work with the ARC Centre of Excellence in Optical Microcombs for Breakthrough Science (COMBS) is affiliated with a defence project in collaboration with The University of Adelaide.

The Research Assistant will also undertake research activities in line with the University's research strategy and will be expected to write reports, meet milestones, engage in high quality research projects, to achieve success in attracting research funding and to produce high quality research outputs. It is expected that the Research Assistant will work with an increasing degree of autonomy.

Reporting Line

Reports to: Distinguished Professor Arnan Mitchell

Direct reports: N/A

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

- Design and develop electronic control systems and high-voltage circuit platforms for electric field poling in lithium niobate waveguides.
- Develop design and fabrication of dispersion engineered waveguides in lithium niobate that can achieve anomalous dispersion spanning an octave as required for super-continuum generation.
- Develop periodically poled waveguides that can assist in wavelength conversion and super-continuum generation translating frequency combs to visible and mid-infrared wavelengths
- Develop and implement electronic interfacing and signal acquisition systems for photonic chip testing, including the control of laser sources, optical alignment stages, and real-time data acquisition systems.
- Collaborate with COMBS members at RMIT and The University of Adelaide to advance the frontier of photonic chip frequency comb systems.
- Rigorously document progress, participate in monthly meetings with the project partners, present the project progress and prepare quarterly project reports.
- 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.
- Actively contribute to the development of research strategy within the research team, ensuring it aligns to University strategy.
- Undertake 10% teaching and learning program appropriate to areas of expertise.
- Undertake 10% collaborative research outside the scope of the project for the purpose of building track record and new research directions

Key Selection Criteria

1. Demonstrated experience in the design, development, and testing of electronic components and systems, including high voltage circuits, embedded control, or data acquisition platforms relevant to photonics and sensing technologies
2. Previous experience with design, fabrication and characterisation of photonic integrated circuits in lithium niobate with particular expertise in periodic poling
3. Previous experience with electronic instrumentation for experimental characterisation, including optical/electrical signal interfacing, high-speed measurements, and automated control systems
4. Ability to learn new skills in multiple disciplines and to work in multi-disciplinary environments
5. Demonstrated initiative in research and problem solving
6. 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
7. Demonstrated ability to supervise higher degree by research candidates
8. Ability to build effective networks with colleagues and generate alternative funding projects through effective liaison with industry and government

9. Excellent interpersonal and communications 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:

- Must have submitted a PhD or equivalent in relevant field
- This project will engage closely with Australian Defence and thus a trajectory towards Australian Citizenship is essential.

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: