

RESEARCH FELLOW

DEPARTMENT/UNIT	Civil Engineering
FACULTY/DIVISION	Faculty of Engineering
CLASSIFICATION	Level A
DESIGNATED CAMPUS OR LOCATION	Clayton campus

ORGANISATIONAL CONTEXT

At [Monash](#), work feels different. There's a sense of belonging, from contributing to something groundbreaking – a place where great things happen. You know you're part of something special and purposeful because, like Monash, your ambitions drive you to make change.

We have a clear purpose to deliver ground-breaking intensive research; a world-class education; a global ecosystem of enterprise – and we activate these to address some of the [challenges](#) of the age, Climate Change, Thriving Communities and Geopolitical Security.

We welcome and value difference and [diversity](#). When you come to work, you can be yourself, be a change-maker and develop your career in exciting ways with curious, energetic, inspiring and committed people and teams driven to make an impact – just like you.

Together with our [commitment to academic freedom](#), you will have access to quality research facilities, infrastructure, world class teaching spaces, and international collaboration opportunities.

We champion an [inclusive workplace culture](#) for our staff regardless of ethnicity or cultural background. We have also worked to improve [gender equality](#) for more than 30 years. Join the pursuit of our purpose to build a better future for ourselves and our communities – [#Changelt](#) with us.

The Faculty of Engineering is the #1 Engineering School in Australia*, renowned worldwide for the quality and calibre of our teaching, research and graduates. We offer a comprehensive selection of undergraduate, graduate, postgraduate and higher degree by research programs in a wide range of engineering disciplines. Our research activities provide a platform for establishing a thriving educational enterprise and our staff are committed to creating a dynamic learning environment. The research activities range from fundamental studies to research with a strong applications orientation. To learn more about the Faculty of Engineering, please visit our website (<https://www.monash.edu/engineering>).

The Department of Civil Engineering form part of the #1 Engineering Faculty in Australia*. We provide high quality Civil Engineering education, research and professional services globally for the mutual benefit of the students, the staff, the University, industry, the profession and the wider community. We offer several undergraduate degrees as well as postgraduate coursework degrees. The Department actively pursues innovative and significant multi-disciplinary research to address the challenges for engineering in the 21st century. The Department of Civil Engineering strives to provide a welcoming and open culture that is inclusive of students and staff of diverse genders, sexes, sexualities, religions and cultures, and people with disabilities. We welcome applications from individuals representing these diverse groups. In accordance with Monash University's commitment to Athena Swan principles, we particularly encourage applications from females. Monash University supports staff with young children and caregiving responsibilities through a range of programs, policies and resources (www.monash.edu/gender-equity/parents). To learn more about our Department and the work we do, please visit our website (<https://www.monash.edu/engineering/departments/civil>).

POSITION PURPOSE

A Level A research-only academic is expected to contribute towards the research effort of the University and to develop their research expertise through the pursuit of defined projects relevant to the particular field of research.

The Research Fellow will be responsible for conducting high altitude platform mission data stream developments including, concept design and associated hardware development and testing of a passive microwave phased array radiometer with antenna aperture synthesis at L-band and/or Ka-band. This role will evaluate alternative radiometer options by considering the weight, power, achieved spatial resolution and complexity of each. This will include developing and testing alternative processing algorithms to take advantage of the low speed and ability to conduct crossing flights, and to leverage the high across-track spatial resolution so as to overcome poor along-track spatial resolution from a one-dimensional antenna array option. Moreover, it is anticipated that to implement a preferred two-dimensional phased array antenna with aperture synthesis it will be necessary to develop lighter and more power efficient radio frequency components, in order to subsequently build and flight-test sub-assemblies.

Reporting Line: The position reports to Academic, Faculty of Engineering

Supervisory Responsibilities: Not applicable

Financial Delegation: Not applicable

Budgetary Responsibilities: Not applicable

KEY RESPONSIBILITIES

Specific duties required of a Level A research-only academic may include:

1. The conduct of research under limited supervision either as a member of a team or, where appropriate, independently and the production or contribution to the production of conference and seminar papers and publications from that research
2. Involvement in professional activities including, subject to availability of funds, attendance at conferences and seminars in the field of expertise
3. Limited administrative functions primarily connected with the area of research of the academic
4. Development of a limited amount of research-related material for teaching or other purposes with appropriate guidance from other staff
5. Occasional contributions to teaching in relation to their research project(s)

6. Experimental design and operation of advanced laboratory and technical equipment or conduct of advanced research procedures
7. Advice within the field of the staff member's research to postgraduate students
8. Attendance at meetings associated with research or the work of the organisational unit to which the research is connected and/or at departmental, school and/or faculty meetings and/or membership of a limited number of committees
9. Other duties as directed from time to time

KEY SELECTION CRITERIA

Education/Qualifications

1. The appointee will have:
 - a doctoral qualification in electrical engineering or a closely related field

Knowledge and Skills

2. Demonstrated analytical and manuscript preparation skills; including a track record of refereed research publications
3. Ability to solve complex problems by using discretion, innovation and the exercise diagnostic skills and/or expertise
4. Well-developed planning and organisational skills, with the ability to prioritise multiple tasks and set and meet deadlines
5. Excellent written and oral communication skills with proven ability to produce clear, succinct reports and documents
6. A demonstrated capacity to work in a collegiate manner with other staff in the workplace
7. Demonstrated computer literacy and proficiency in the production of high level work, with the capability and willingness to learn new packages as appropriate
8. Experience in the design, construction and testing of microwave radiometers, and with L-band/Ka-band phased array microwave radiometers in particular, is highly desirable
9. Strong signal processing skills, with experience in aperture synthesis processing and phased array beamforming in fielded antenna systems, being particularly desirable

OTHER JOB RELATED INFORMATION

- Travel to other campuses of the University may be required
- There may be a requirement to work additional hours from time to time
- There may be peak periods of work during which taking of leave may be restricted
- Participation in month-long remote area field campaigns as required

GOVERNANCE

Monash University expects staff to appropriately balance risk and reward in a manner that is sustainable to its long-term future, contribute to a culture of honesty and integrity, and provide an environment that is safe, secure and inclusive. Ensure you are aware of and adhere to University policies relevant to the duties undertaken and the values of the University. This is a standard which the University sees as the benchmark for all of its activities in Australia and internationally.