



THE UNIVERSITY OF  
MELBOURNE

## POSITION DESCRIPTION

**Faculty of Science**  
School of Ecosystem & Forest Sciences

### Research Fellow – Real Time Control for Urban Wetlands & Waterways

<b>POSITION NO</b>	0055772
<b>CLASSIFICATION</b>	Level A
<b>SALARY</b>	\$75,289 — 102,163 p.a. (pro rata for part time) (PhD entry level 95,179)
<b>SUPERANNUATION</b>	Employer contribution of 17%
<b>WORKING HOURS</b>	Full-time or part-time (negotiable) and with flexible working arrangements negotiable
<b>BASIS OF EMPLOYMENT</b>	Fixed-term (18 months)
<b>OTHER BENEFITS</b>	<a href="https://about.unimelb.edu.au/careers/staff-benefits">https://about.unimelb.edu.au/careers/staff-benefits</a>
<b>HOW TO APPLY</b>	Online applications are preferred. Go to <a href="http://about.unimelb.edu.au/careers">http://about.unimelb.edu.au/careers</a> , select the relevant option ('Current Opportunities' or 'Jobs available to current staff'), then find the position by title or number.
<b>CONTACT FOR ENQUIRIES ONLY</b>	Prof. Tim Fletcher Tel +61 3 9035 6854 Email <a href="mailto:timf@unimelb.edu.au">timf@unimelb.edu.au</a>  <i>Please do not send your application to this contact</i>

For information about working for the University of Melbourne, visit our website:  
[about.unimelb.edu.au/careers](http://about.unimelb.edu.au/careers)

## ***Position Summary***

You will work in a group of researchers studying interactions between landscapes and waterways, including rivers, streams and wetlands. We aim to generate knowledge and tools for achieving healthy waterways in urban and rural landscapes. The group is made up of ecologists, engineers, hydrologists, chemists, geomorphologists and social scientists. Combined, these skills allow us to undertake novel interdisciplinary research, as well as fundamental and applied research within each of our own disciplines. Our research ranges from laboratory studies (e.g. development and testing of stormwater management technologies) through to modelling (e.g. development and application of hydrologic, hydraulic and ecological models) and field-based research (e.g. examination of drivers of ecological and geomorphic condition of running waters, at whole-of-catchment scale). We work in close collaboration with other researchers and research programs from around the world, as well as our local industry partners.

Importantly, we work in close collaboration with Melbourne Water, through the Waterways Research Practice Partnership (<http://mwrpp.org>) and with South East Water and its technology arm, IoTa.

You will play a key role in this research program, working on the development and application of real-time control (RTC) technologies for the management of (i) urban stormwater wetlands and (ii) smart rainwater harvesting networks for the supply of environmental flows to urban streams. You will work as part of a team, developing new algorithms to optimise the performance of these RTC systems, and testing these in real-world applications. You will be supported by a team of dedicated research technicians, working on the development and deployment of low-costs sensors and data telemetry systems. You will participate in and lead in the preparation of research publications in high-quality peer reviewed journals and conferences.

The position is located in the Waterway Ecosystem Research Group (<http://thewerg.org>), within the School of Ecosystem and Forest Sciences (<http://ecosystemforest.unimelb.edu.au>) in the Faculty of Science (<http://science.unimelb.edu.au>). We work in collaboration with others, and in particular the Melbourne School of Engineering. You may have the opportunity to participate in some teaching, if you wish, and you will be part of the broader research community within the School and Faculty.

We have a strong commitment to supporting diversity and flexibility in the workplace; applications for part-time or other flexible working arrangements will be welcomed.

## ***1. Key Responsibilities***

### **1.1 TEACHING AND LEARNING**

- ▶ This is a research-only position, although the successful candidate may be invited to give the occasional guest lecture or provide occasional help with specific teaching in their area of interest and expertise.

### **1.2 RESEARCH AND RESEARCH TRAINING**

- ▶ Working under the guidance of the Chief Investigators, plan and carry out research on the application of real-time control in stormwater wetlands and in smart rainwater storage networks and urban streams.

- ▶ Develop effective timelines and milestones based on goals of the research projects.
- ▶ Contribute to work as a team and further the research group's output, including contributions to the Melbourne Waterway Research Practice Partnership's research and scientific communication objectives
- ▶ Prepare and publish research outcomes in conferences and journals and other scholarly outputs to a high academic standard in accordance with the research expectations of the University of Melbourne.
- ▶ Undertake administrative functions and obligations primarily connected with the staff member's area of research.
- ▶ Work towards building an independent research project and profile, including development of grant applications, with the support of Chief Investigators.
- ▶ Liaise effectively with collaborators with a variety of internal and external stakeholders.

### 1.3 LEADERSHIP AND SERVICE

- ▶ Active participating in communication and dissemination of research findings and their implications, to government, industry and collaborators.
- ▶ Contribute to broader knowledge exchange efforts within the Melbourne Waterway Research Practice Partnership (<http://mwrpp.org>).
- ▶ Actively contribute to the collegiate culture of the School of Ecosystem & Forest Sciences and the Waterway Ecosystem Research Group
- ▶ Actively participate in mentoring and career sponsorship of students and staff under supervision, as appropriate.

### 1.4 RESPONSIBILITY AND COMPLIANCE

- ▶ Maintain a sound knowledge of current University Policy and Procedures, and reliably follow these or provide compliant advice to others;
- ▶ Reliably follow communications protocols and/or policies as appropriate.
- ▶ Occupational Health and Safety (OH&S) and Environmental Health and Safety (EH&S) responsibilities as outlined in Section 5.
- ▶ Behavioural Expectations - All staff are expected to maintain the following behaviours:
  - ▶ Treat everyone equitably; act fairly with staff and demonstrate respect for diversity
  - ▶ Be an effective team player who is cooperative and gains the trust and support of staff, peers and clients through collaboration.
  - ▶ Create ethics applications and report to the ethics committees.

## 2. Selection Criteria

In order to be considered for interview by the Selection Panel, applicants must address the following Criteria in their application. Please visit the University website how to address [Essential Selection Criteria](#)

### 2.1 ESSENTIAL

- ▶ A PhD or equivalent experience in engineering, computer science, data science, information systems, mathematics, physics or a relevant discipline.
- ▶ A record of high-quality research as evidenced by publications in leading journals and at conferences, commensurate with opportunity.
- ▶ Demonstrated ability to develop, administer and see through to completion appropriately designed research projects with limited supervision.
- ▶ Demonstrated ability to collaborate with industry partners.
- ▶ Demonstrated ability to work independently but also to contribute as a member of a close-knit team

### 2.2 DESIRABLE

- ▶ A genuine interest in the environment and sustainability.
- ▶ Experience in application of sensor and control systems to water systems, wetlands, waterways or hydrology.
- ▶ Supervision of students or other researchers
- ▶ Record of applying for and attracting research grant funding, and ideally some entrepreneurial flair.
- ▶ Ability to develop efficient, complex code using one or several of R, Python, Java, JavaScript, C++,# or MATLAB, and experience in deployment of code in a variety of environments, such as for control of SCADA systems.
- ▶ Experience in open-source electronic prototyping platforms, such as Arduino.

### 2.3 SPECIAL REQUIREMENTS OF THE ROLE

- ▶ This position requires the incumbent to hold a current and valid Working with Children Check
- ▶ The Waterway Ecosystem Research Group is located at the Burnley Campus of the University of Melbourne, although location of the position may be negotiable, including the opportunity for work-from-home arrangements for at least part of the time, where desired.
- ▶ The position will require travel to field sites within the Melbourne region.

### ***3. Equal Opportunity, Diversity and Inclusion***

The University is an equal opportunity employer and is committed to providing a workplace free from all forms of unlawful discrimination, harassment, bullying, vilification and victimisation. The University makes decisions on employment, promotion, and reward on the basis of merit.

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 Advancing Melbourne strategy that addresses diversity and inclusion, equal employment opportunity, discrimination, sexual harassment, bullying and appropriate workplace behaviour. All staff are required to comply with all University policies.

The University values diversity because we recognise that the differences in our people's age, race, ethnicity, culture, gender, nationality, sexual orientation, physical ability and background bring richness to our work environment. Consequently, the People Strategy sets out the strategic aim to drive diversity and inclusion across the University to create an environment where the compounding benefits of a diverse workforce are recognised as vital in our continuous desire to strive for excellence and reach the targets of Advancing Melbourne.

### ***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***

#### **5.1 SCHOOL OF ECOSYSTEM AND FOREST SCIENCES**

<https://ecosystemforest.unimelb.edu.au/>

The School of Ecosystem and Forest Sciences (SEFS) is Australia's premier research and education provider dedicated to the study of ecosystem processes, sustainable land management, and environmental social science in forest and other ecosystems, covering the full range from natural to highly urbanised systems. SEFS combines expertise in the biological and physical sciences with environmental social science to provide research and teaching of applied ecosystem science that is relevant to society, delivering innovative solutions to the environmental issues faced by a rapidly growing global community. Our work spans from molecular to ecosystem scales, from technology to sociology, and from city to wilderness.

Established research strengths include 'Integrated Forest Ecosystem Research', 'Bushfire Science', 'Green Infrastructure', and 'Ecohydrology'. SEFS features significant cross-institutional collaborations and engagement activities with many industries throughout Australia and South-east Asia.

As a School we deliver a major in the Bachelor of Science (Ecosystem Science) and provide leadership in applied sciences through our Postgraduate Coursework degrees, including the Master of Ecosystem and Conservation Management, Master of Urban Horticulture, and Graduate Certificates in Arboriculture, Bushfire Planning and Management, Garden Design and Green Infrastructure; providing individuals working in industry with opportunities for intensive and career-directed learning and skills development.

As one of six Schools within the Faculty of Science, SEFS operates from three locations:

- ▶ the University's main Campus at Parkville;
- ▶ the suburban Burnley Campus with a century old tradition of excellence in urban horticulture, which today is a dynamic multidisciplinary research centre with a focus on green infrastructure, urban ecology, ecohydrology and forest science; and
- ▶ the regional Creswick Campus, the University's specialist campus for forest science and the birthplace of forest education and research in Australia, which today also is home to significant plant and crop science initiatives of other Faculties.

Our extensive teaching and research facilities at all three campuses are complemented by a number of long-term field research sites including 'Long Term Fire Effects Study Areas' established in the 1980s, the Little Stringybark Creek urban catchment experiment, and a 'Terrestrial Ecosystem Research Network Super Site' in the Wombat State Forest, close to Creswick, which represent a significant strength of the new School.

Information on the School of Ecosystem & Forest Sciences can be found at <https://ecosystemforest.unimelb.edu.au/>

## 5.2 FACULTY OF SCIENCE

<http://www.science.unimelb.edu.au>

Science at the University of Melbourne is the most highly ranked Faculty of Science in Australia. Science is defined by its research excellence in the physical and life sciences and is at the forefront of research addressing major societal issues from climate change to disease. Our discoveries help build an understanding of the world around us.

We have over 150 years of experience in pioneering scientific thinking and analysis, leading to outstanding teaching and learning and offer a curriculum based on highly relevant research, which empowers our STEM students and graduates to understand and address complexities that impact real world issues and the challenges of tomorrow.

We aspire to engage the broader community with the impact that Science has on our everyday lives. Through the strength of our internships and research project offerings, our students are provided opportunities to engage with industry partners to solve real-world issues.

The Faculty of Science has over 50,000 alumni and is one of the largest faculties in the University comprising six schools: BioSciences, Chemistry, Ecosystem and Forest Sciences, Mathematics and Statistics, Physics and the School of Geography, Earth and Atmospheric Sciences.

The Faculty is custodian of the Bio21 Molecular Science and Biotechnology Institute, the Indigenous Knowledge Institute, the Melbourne Energy Institute, the Office for Environmental Programs and home to numerous Centres.

Science manages more than \$301 million of income per annum, with a staff base in the order of 250 FTE professional staff, and more than 662 FTE academic staff.

We offer a range of undergraduate, honours, graduate and research degrees; enrolling over 10,800 undergraduate and 2,500 graduate students. The Faculty of Science is the custodial Faculty for the BSc (Bachelor of Science). The Faculty of Science is highly research focused, performing strongly in the Australian Research Council competitive grants schemes. The Faculty of Science is currently growing its competitiveness and standing in the National Health and Medical Research Council and health space.

The Faculty of Science provides community services and industry partnerships based on a solid foundation of research in the pure and applied sciences. The Faculty has an endowment of approximately \$100 million. The annual income from the endowment supports more than 140 prizes, scholarships and research awards, and numerous academic positions.

### 5.3 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.

Further information about working at The University of Melbourne is available at <http://about.unimelb.edu.au/careers>

### 5.4 ADVANCING MELBOURNE

The University's strategic direction is grounded in its purpose. While its expression may change, our purpose is enduring: to benefit society through the transformative impact of education and research. Together, the vision and purpose inform the focus and scale of our aspirations for the coming decade.

Advancing Melbourne reflects the University's commitment to its people, its place, and its partners. Our aspiration for 2030 is to be known as a world-leading and globally connected Australian university, with our students at the heart of everything we do.

- ▶ We will offer students a distinctive and outstanding education and experience, preparing them for success as leaders, change agents and global citizens.
- ▶ We will be recognised locally and globally for our leadership on matters of national and global importance, through outstanding research and scholarship and a commitment to collaboration.
- ▶ We will be empowered by our sense of place and connections with communities. We will take opportunities to advance both the University and the City of Melbourne in close collaboration and synergy.

- ▶ We will deliver this through building a brilliant, diverse and vibrant University community, with strong connections to those we serve.

The means for achieving these goals include the development of the University of Melbourne's academic and professional staff and the capabilities needed to support a modern, world-class university. Those means require a commitment to ongoing financial sustainability and an ambitious infrastructure program which will reshape the campus and our contribution to the communities we engage with. This strategy, and the priorities proposed, is centred around five intersecting themes; place, community, education, discovery and global.

## 5.5 GOVERNANCE

The Vice Chancellor is the Chief Executive Officer of the University and responsible to Council for the good management of the University.

Comprehensive information about the University of Melbourne and its governance structure is available at <https://about.unimelb.edu.au/strategy/governance>