



POSITION DESCRIPTION

School of Electrical, Mechanical and Infrastructure Engineering
Melbourne School of Engineering

Research Fellow in Hydroclimate Forecasting

In line with the special measure H103/2014 provided for under section 12 of the Equal Opportunity Act 2010 (VIC), the Melbourne School of Engineering strongly encourages applications from suitably qualified female candidates.

POSITION NO	0042902
CLASSIFICATION	Research Fellow (Level A) Research Fellow (Level B)
SALARY	Level A: \$69,148 to \$93,830 p.a. (PhD entry Level A.6 \$87,415 p.a.) Level B: \$98,775 to \$117,290 p.a. <i>Level of appointment is subject to qualifications and experience</i>
SUPERANNUATION	Employer contribution of 9.5%
EMPLOYMENT TYPE	Full-time (fixed term) position available for 3 years Fixed term contract type: Research
OTHER BENEFITS	http://about.unimelb.edu.au/careers/working/benefits
CURRENT OCCUPANT	Replacement
HOW TO APPLY	Online applications are preferred. Go to http://about.unimelb.edu.au/careers , under 'Job Search and Job Alerts', select the relevant option ('Current Staff' or 'Prospective Staff'), then find the position by title or number.
CONTACT FOR ENQUIRIES ONLY	Prof QJ Wang Tel +61 3 8344 9781 Email quan.wang@unimelb.edu.au <i>Please do not send your application to this contact</i>

For information about working for the University of Melbourne, visit our websites:
about.unimelb.edu.au/careers

Position Summary

The Melbourne School of Engineering (MSE) has recently invested in the Water, Environment and Agriculture Program to enhance collaboration and expand the scale and visibility of water research and teaching at The University of Melbourne. This exciting development will build on the existing team of water researchers who have a strong culture of collaboration, a well-established international research profile and extensive industry linkages across the water sector in Australia. The School aims to make a significant contribution to a sustainable water future for Australia and other parts of the world experiencing water scarcity and hazards by both generating knowledge and educating engineers to implement this knowledge for society.

This position is established to conduct leading edge research in ensemble hydroclimate forecasting and in applications of forecasts to management of water resources and hazards. You will develop, implement and evaluate original methods and computer models in some or all of the following areas: analyses of hydroclimate observations, post-processing of forecasts from weather and climate models, catchment water balance and river routing modelling, hydrological model prediction updating and uncertainty quantification, and verification of ensemble forecasts. You will collaborate to enhance interdisciplinary research within the University and with outside organisations, in particular in applications of water forecasts to water management. You will work with external water information and management agencies to develop and deliver research projects to meet technological requirements of users. You may undertake some teaching and research supervision related to your area of research, as required.

1. Selection Criteria

1.1 ESSENTIAL

- ▶ A PhD or equivalent research experience in computer sciences, applied mathematics, environmental engineering, earth system sciences, environmental sensing or a related discipline.
- ▶ Demonstrated high level research experience in mathematical, statistical and computer modelling, in dealing with large data sets, and in using high performance computing.
- ▶ A strong research track record as evidenced by research publications in high-quality journals and conferences, and technical reports.
- ▶ Experience in using initiative, working with minimal supervision and ability to prioritise tasks to achieve project objectives within timelines.
- ▶ Excellent written and verbal communication skills, demonstrated by presentation of research results at conferences, internal forums and through manuscript submissions.
- ▶ Excellent interpersonal skills, including an ability to interact with internal and external stakeholders (academic, administrative and support staff) in a courteous and effective manner.

1.2 DESIRABLE

- ▶ Demonstrated research experience in ensemble hydroclimate forecasting, hydrological modelling and uncertainty quantification.
- ▶ Skills in Bayesian statistical modelling and in computer coding using C++ and Python.

ADDITIONAL ESSENTIAL CRITERIA FOR RESEARCH FELLOW LEVEL B

At Research Fellow Level B, the ideal candidate should meet all of the above, and additionally must demonstrate:

- ▶ Demonstrated ability to perform independent research and a commitment to interdisciplinary research;
- ▶ Ability to manage collaborative projects and research activities, involving the management of personnel, timelines and budgets, and relationships with various stakeholders.

2. Key Responsibilities

2.1 RESEARCH

- ▶ Conduct high-quality research in the areas of ensemble hydroclimate forecasting and use of forecasts for water management.
- ▶ Develop modelling tools and systems for research and for technology transfer to create research impacts.
- ▶ Actively engage academic and industry partners to establish effective collaborations between multidisciplinary groups across the school, the university, and national and international research/industry partners in the areas of water forecasting and applications of forecasts to water management.
- ▶ Contribute to knowledge through scholarship, publications in leading journals and with leading publishers, and presentations.
- ▶ Contribute to the success of the research and innovation program within the Water, Environment and Agriculture Program in the Melbourne School of Engineering.
- ▶ Proactively seek funding opportunities to develop a program of research.

2.2 TEACHING AND LEARNING

- ▶ Contribute to teaching, training, scientific mentoring and supervision of students.
- ▶ Supervise junior research staff in the appointee's area of expertise.
- ▶ Conduct lectures, tutorials, marking and other teaching duties as required.

2.3 ENGAGEMENT

- ▶ Build and foster partnerships with industry, government, collaborators at other universities and other stakeholders that contribute to the engagement of research and teaching in the wider community engagement.
- ▶ Actively participate in professional activities including consulting, workshops, meetings of professional societies and short courses for external participants.

2.4 SERVICE AND LEADERSHIP

- ▶ Participate in departmental committees and/or projects as required.
- ▶ Participate in administrative functions as required.
- ▶ Undertake Occupational Health and Safety (OH&S) and Environmental Health and Safety (EH&S) responsibilities as outlined in [Section 4](#).

ADDITIONAL RESPONSIBILITIES FOR A RESEARCH FELLOW LEVEL B

- ▶ Lead and contribute to the preparation and submission of competitive grant applications relating to the appointee's research program;
- ▶ Undertake responsibility for the general oversight of grants associated with the research.

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 University's People Strategy 2015-2020 and policies that address 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.

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:

<http://safety.unimelb.edu.au/topics/responsibilities/>

These include general staff responsibilities and those additional responsibilities that apply for Managers and Supervisors and other Personnel.

5. Other Information

5.1 MELBOURNE SCHOOL OF ENGINEERING

www.eng.unimelb.edu.au

The Melbourne School of Engineering is one of Australia's leading Engineering Schools and aims to be the school of choice for the highest performing students and research staff in Australia and within the Times Higher Education Supplement top ten Schools of Engineering internationally by 2020.

The Melbourne School of Engineering's MSE2025 strategy and the University's broader Growing Esteem strategy target research excellence, outstanding teaching and increasing societal impact of its research. MSE2025 has a particular focus on strengthening engagement with industry, government and the community and to meet this challenge, the school has established innovation platforms that will support cross-faculty research programs in areas of

strategic applied research opportunity. The Water, Environment and Agriculture Program is one of the innovation platforms. It aims to make an important contribution to a sustainable water future both in Australia and worldwide, and build an outstanding international reputation for excellence in water research, innovation and education.

Fundamental to this mission is an expanding scale of effort in areas with high societal impact and research opportunity, across four sub-programs: River Basins; Agriculture; Water Infrastructure; and Environmental Management. Specifically, we will undertake research and development, with a select group of partners, to achieve the following impacts:

- ▶ Future proofing **River Basins** by stress testing water plans under climate change;
- ▶ Boosting **agricultural** multi-factor productivity through improved sensing, forecasts, analytics, and control;
- ▶ Reducing cost, energy use and environmental impact of **water infrastructure** systems through integrated system planning, treatment innovation and recycling; and
- ▶ Increasing the return on investment from **environmental** water by operationalizing evidence-based **management** and optimising environmental water use.

Innovations in these areas will be fuelled by research excellence with a critical mass that makes MSE internationally visible for its leadership in water science and technology. These areas are well aligned to nourish our Master of Engineering and other teaching programs by contact with cutting-edge practice and research.

The high-level program aims are:

- ▶ To increase the excellence, scale, visibility and impact of water research at The University of Melbourne.
- ▶ To enhance research-industry engagement at national and international levels that will facilitate the increase in Category 2-4 research income.
- ▶ To achieve an overall external funding income (combined Category 1-4) of at least A\$5M p.a. by 2020. External revenue can be considered “as a proxy” for delivering impact.
- ▶ To develop new and improved methodologies and technologies that will enhance the quality of water information for improved decision making.
- ▶ To develop an online education and training program in sustainable water management that builds skills and capability for industry, government and communities.

5.2 THE UNIVERSITY OF MELBOURNE

The University of Melbourne is a leading international university with a tradition of excellence in teaching and research. The University offers staff many benefits and prospective staff are encouraged to view the following web links:

www.unimelb.edu.au

www.growingesteem.unimelb.edu.au

www.unimelb.edu.au/careers

The University of Melbourne has an exceptional breadth of expertise in water research including across the Faculties of Engineering, Law, Business and Economics and Science with expertise in fields across the breadth of water science, policy and planning. The University also has a number of interdisciplinary institutes that complement the discipline depth of our Faculties, including the Melbourne Sustainable Society Institute, the Melbourne Social Equity Institute and the Melbourne School of Government. On an institutional level, water is a central theme in our

sustainability and resilience agenda, comprising one of three Grand Challenges identified by the University's *Research at Melbourne Strategy*.

<http://research.unimelb.edu.au/research-at-melbourne/our-strategy>

5.3 EQUITY AND DIVERSITY

Another key priority for the University is access and equity. The University of Melbourne is strongly committed to an admissions policy that takes the best students, regardless of financial and other disadvantage. An Access, Equity and Diversity Policy Statement, included in the University Plan, reflects this priority.

The University is committed to equal opportunity in education, employment and welfare for staff and students. Students are selected on merit and staff are selected and promoted on merit.

5.4 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 www.unimelb.edu.au/unisec/governance.html.