POSITION DESCRIPTION

Position Title: Postdoctoral Research Fellow/Research Fellow (CFD)
Organisation Unit: Advanced Water Management Centre
Position Number: NEW
Type of Employment: Full-time, fixed term appointment for 1 year
Classification: Research Academic Level A/B commensurate with qualifications and experience

THE UNIVERSITY OF QUEENSLAND

The University of Queensland (UQ) contributes positively to society by engaging in the creation, preservation, transfer and application of knowledge. UQ helps shape the future by bringing together and developing leaders in their fields to inspire the next generation and to advance ideas that benefit the world. UQ strives for the personal and professional success of its students, staff and alumni. For more than a century, we have educated and worked with outstanding people to deliver knowledge leadership for a better world.

UQ ranks in the world’s top universities, as measured by several key independent ranking, including the Performance Ranking of Scientific Papers for World Universities (43), the US News Best Global Universities Rankings (52), QS World University Rankings (47), Academic Ranking of World Universities (55), and the Times Higher Education World University Rankings (60). UQ again topped the nation in the prestigious Nature Index and our Life Sciences subject field ranking in the Academic Ranking of World Universities was the highest in Australia at 20.

UQ has an outstanding reputation for the quality of its teachers, its educational programs and employment outcomes for its students. Our students remain at the heart of what we do. The UQ experience – the UQ Advantage – is distinguished by a research enriched curriculum, international collaborations, industry engagement and opportunities that nurture and develop future leaders. UQ has a strong focus on teaching excellence, winning more national teaching excellence awards than any other in the country and attracting the majority of Queensland’s highest academic achievers, as well as top interstate and overseas students.

UQ is one of Australia’s Group of Eight, a charter member of edX and a founding member of Universitas 21, an international consortium of leading research-intensive universities.

Our 50,000-plus strong student community includes more than 13,000 postgraduate scholars and more than 12,000 international students from 144 countries, adding to its proud 240,000-plus alumni. The University has about 7,000 academic and professional staff and a $1.8 billion annual operating budget. Its major campuses are at St Lucia, Gatton and Herston, in addition to teaching and research sites around Queensland and Brisbane city. The University has six Faculties and four University-level Institutes. The Institutes, funded by government and industry grants, philanthropy and commercialisation activities, have built scale and focus in research areas in neuroscience, biomolecular and biomedical sciences,
sustainable minerals, bioengineering and nanotechnology, as well as social science research.

UQ has an outstanding track-record in commercialisation of our innovation with major technologies employed across the globe and integral to gross product sales of $11billion+ (see http://uniquest.com.au/our-track-record).

UQ has a rapidly growing record of attracting philanthropic support for its activities and this will be a strategic focus going forward.

Organisational Environment

The Advanced Water Management Centre (AWMC) is an internationally recognised centre of excellence in innovative water technology and management. The Centre has an outstanding worldwide reputation in urban water management and related fields, and an award winning multidisciplinary team delivers practical technological solutions underpinned by fundamental scientific discoveries.

The Centre has six interlinked programs namely, next generation urban water technologies, integrated urban water management, sewer corrosion and odour management, nexus of urban water, health and environment, resource efficient agri-industry and environmental biotechnology.

Collaborative linkages with industry are strong and solutions developed by the Centre have yielded quantifiable benefits in the order of hundreds of millions of dollars to the Australian water industry and other sectors. At the same time, the AWMC has an outstanding academic publication record, publishing on average more than 100 papers a year in high quality journals including the most prestigious multidisciplinary journals including Nature and Science, and top discipline journals such as Water Research and Environmental Science and Technologies.

The Centre has well-established process, microbiology and analytical labs. The direct collaboration with industry partners has also led to the creation of several field facilities including the Innovation Centre at Queensland Urban Utilities’ Luggage Point Sewage Treatment Plant, supporting technology demonstration at larger scales and under practical conditions.

The Centre recognises and values equity and diversity, and encourages applications from any individual who meets the requirements of this position irrespective of gender, sexuality, race, ethnicity, religion, disability, age or other protected attributes. The Centre strives to provide an inclusive working environment, and along with the University is committed to supporting staff with family and caring responsibilities by providing policies, programs and initiatives to help balance work and family responsibilities.

For more Information about the Centre, please visit: www.awmc.uq.edu.au

Information for Prospective Staff

Information about life at UQ including staff benefits, relocation and UQ campuses is available at - http://www.uq.edu.au/current-staff/working-at-uq

The University of Queensland Enterprise Agreement outlines the position classification standards for Levels A to E.
DUTY STATEMENT

Primary Purpose of Position

The Advanced Water Management Centre is seeking a postdoctoral researcher with a primary field of computational fluid dynamics (CFD), to work across two major projects in the area of wastewater treatment, with a focus on solid-liquid and biological processes.

Duties

Duties and responsibilities include, but are not limited to:

Research

- Develop distributed parameter models through the application and development of appropriate software to describe wastewater system fluid dynamics, including in multi-phase (gas-liquid) systems.
- Develop models for delivery and conversion of molecular hydrogen in anaerobic digesters, to support the Danish Research Council funded Electrogas project.
- Develop models for movement and transformation of solids in wastewater lagoons in the Australian Research Council (Linkage Projects) funded “Anaerobic lagoons” project.
- Support delivery of project outcomes and reports into the two projects.
- Present findings at internal seminars, conferences and industry workshops as required.
- Work with colleagues and postgraduates in the development of joint research projects both within the AWMC and across other disciplines.
- Engage with external stakeholders who include supporting industry partners and a broader consortium of industry representatives and participants from other broadly-related research projects.
- Publish research in the form of scientific and technical reports to participating industries as well as water and waste utilities and in the form of project reports and high quality refereed journal publications.

Teaching and Learning

- As a ‘Research focussed’ position, there is no formal requirement for undergraduate teaching. However it is encouraged that you actively seek teaching opportunities through the School of Chemical Engineering.
- Assist in the supervision of students at honours, master and postgraduate levels.
- Contribute to industry education through short course development and delivery.

Service and Engagement

- Foster the Centre’s relations with industry, government departments, professional bodies and the wider community.
- Perform a range of administrative functions in the Centre.
- Be involved in further development and establishment of the AWMC CFD support node (supporting researchers involved in CFD and multi-dimensional modelling).
- Any other duties as reasonably directed by your supervisor.
For Appointment at Level B

As per above, as well as:

- Engage in an independent and/or team research program including external funding, and achieve national recognition in an area of waste management, waste valorisation or water treatment technologies.
- Develop a program of fundamental, applied and contract research in an area of waste management, waste valorisation or water treatment technologies.
- Supervision of students at honours, master and postgraduate levels.
- Contribute to the processes that enable the academic team to manage the work of the Institute, including participation in Institute and Centre decision-making and serving on Institute committees.

Other

Ensure you are aware of and comply with legislation and University policy relevant to the duties undertaken, including but not exclusive to:

- the University’s Code of Conduct
- requirements of the Queensland occupational health and safety (OH&S) legislation and related OH&S responsibilities and procedures developed by the University or Institute/School
- the adoption of sustainable practices in all work activities and compliance with associated legislation and related University sustainability responsibilities and procedures
- requirements of the Education Services for Overseas Students Act 2000, the National Code 2007 and associated legislation, and related responsibilities and procedures developed by the University

Organisational Relationships

The position reports to Prof. Damien Batstone
SELECTION CRITERIA

**Essential**
- A PhD in chemical/environmental engineering, or mechanical engineering.
- Research focus on distributed parameter modelling or CFD in wastewater systems either through PhD work, or substantively through subsequent publications.
- Demonstrated capacity to contribute to research publications, as evidenced by first authored peer-reviewed publications in high ranking journals.
- Ability to work collaboratively with colleagues.

**Desirable**
- Experience with Openfoam or Ansys software for CFD, including programming and scripting.
- Experience in simulation of solid-liquid systems in wastewater (clarifiers, bioreactors, etc).
- Experience in gas-liquid multi-phase CFD.
- Demonstrated skills in report writing in multiple formats (internal, industry, government).
- Experience in RHD students supervision.

**For Appointment at Level B:**
As listed above, as well as:
- Demonstrated contribution to independent and/or team research projects, including successful external grant applications.
- Demonstrated contribution toward the effective supervision of students (honours, masters and PhD) and participation in teaching of coursework students.
- Developed industry liaisons and professional contacts.
- Established track record of publication in high quality journals.
- National recognition in the area of expertise.
- Ability to take on a chief investigator role in applications for external funding.

**Qualification Verification**
An appointment to this position is subject to the verification of the highest academic qualification from the conferring institution.

The University of Queensland values diversity and inclusion and actively encourages applications from those who bring diversity to the University. Please refer to the University’s Diversity and Inclusion webpage (http://www.uq.edu.au/equity) for further information and points of contact if you require additional support.

This role is a full-time position; however, flexible working arrangements may be negotiated. Accessibility requirements and/or adjustments can be directed to the contact person listed in the job advertisement.