POSITION DESCRIPTION

Position Title: Research Fellow – Mechanical Engineering
Organisation Unit: School of Mechanical and Mining Engineering
Position Number: TBA
Type of Employment: Full-time, Fixed term for 3 years
Classification: Research Academic Level B

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 (65). 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://uniqeust.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

With an excellent reputation for quality graduate training and research performance, the School of Mechanical and Mining Engineering delivers a comprehensive range of programs in aerospace, materials, mechanical, mechatronic and mining engineering.

Boasting strong student enrolments in professionally accredited programs, combined with world-class researchers and facilities, we are focused on strengthening our position in the engineering community. We will develop global solutions to contemporary issues and mentor the leaders of tomorrow by attracting the brightest minds and fostering a truly innovative and collaborative work environment.

The School recognises and values equity and diversity, and encourages applications from any individual who meets the requirements of this position, regardless of gender, sexuality, race, ethnicity, religion, disability, age or other protected attributes. The School 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 School, please visit: http://www.mechmining.uq.edu.au/

Innovative Cardiovascular Engineering and Technology Laboratory (ICETLAB) and the ARC Hub for Advanced Manufacturing of Medical Devices (AMMD Hub)

The postdoctoral research fellow position will work within a collaboration between the Critical Care Research Group’s (CCRG) Innovative Cardiovascular Engineering and Technology Laboratory (ICETLAB – www.icetlab.com) and the ARC Hub for Advanced Manufacturing of Medical Devices (AMMD Hub – www.ammd.org.au), facilitated by the University of Queensland, Faculty of Engineering, Architecture and Information Technology.

The research fellow will be based in the ICETLAB which is based at The Prince Charles Hospital, Chermside, QLD, Australia. The ICETLAB research group is located within Australia’s largest cardiac hospital and only a two minute walk to theatre and intensive care units where clinical and patient feedback can be obtained. ICETLAB research projects centre on cardiovascular engineering, with the primary aim to improve outcomes for patients receiving mechanical circulatory support. The ICETLAB was founded in 2007 and over the 10+ years of its existence the ICETLAB has produced over 50 peer-reviewed publications and has been awarded over 7 million AUD of competitive grant funding. The ICETLAB has grown continuously and houses now approximately 20 full- or part-time researchers of postdoctoral, PhD, Masters, or undergraduate levels with expertise ranging from medical, mechanical and electrical engineering, basic science and manufacturing. The ICETLAB is a big part of the first-ever international NHMRC Centre of Research Excellence (CRE) in Advanced Cardio-respiratory Therapies Improving OrgaN Support (ACTIONS) and our group published the first-ever collaborative textbook of mechanical circulatory and respiratory support. In both projects,
the ICETLAB collaborated with other national and international researchers in the field of mechanical circulatory and respiratory support.

The research fellow will also be a key participant within the AMMD Hub, based at the University of Queensland. The AMMD Hub was established with the vision to drive the rapid and efficient manufacture of customized medical devices tailored to individual clinical needs. The AMMD Hub brings together research and industry partners committed to the development and application of advanced manufacturing technologies and the translation of this research into outcomes for industry. The Hub team seeks to concurrently develop materials, technologies and flexible manufacturing processes, as advanced manufacturing technologies are crucial to enabling the next generation of medical devices. The AMMD Hub received funding of $2.8 million for five years from the ARC through the Industrial Transformation Research Programme. This investment was matched by industry partners, with a total value of more than $10 million of cash and in-kind funding.

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 mechanical engineering research fellow is responsible for supporting the development and evaluation of mechanical circulatory and respiratory support devices in line with the research objectives of the ICETLAB and AMMD Hub. Particular focus will be on pump design, patient monitoring and physiological control, cannula design, clinical training tools, and the evaluation and validation of the respective devices and systems. The role will include supervision of undergraduate and HDR students, writing grant applications and frequent reporting in the form of peer reviewed publications and conference presentations. The position will also enhance the collaboration through joint research projects between the ICETLAB, AMMD Hub and the School of Mechanical and Mining Engineering.

Duties

Duties and responsibilities include, but are not limited to:

Research

- Develop an independent and/or team research program including external funding, and achieve recognition in the research area
- Conduct research and publish scholarly papers in high quality outputs such as refereed international journals, books and conference proceedings
- Manage the preparation and formulation of publications, presentations, and research reports arising from this research
- Foster new and existing collaborations within the University, CCRG, ICETLAB, AMMD Hub, national and international partners
- Strengthen the reputation and expertise of the ICETLAB, AMMD Hub, CCRG and University within the research field of mechanical circulatory and respiratory support in collaboration with ICETLAB, AMMD Hub and CCRG staff
- Develop a program of applied and contract research in the field
- Work with colleagues and postgraduates in the development of joint research projects
- Prepare research publications and progress reports and participate in regular meetings to discuss project objectives, methodology and outcomes
- Actively seek research funding from internal and external sources including the Commonwealth research granting agencies, the state government and industry

**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.
- Contribute to supervision of honours and postgraduate students

**Service and Engagement**
- Perform a range of administrative functions in the School
- Contribute to the processes that enable the academic team to manage the work of the School, including participate in School decision-making and serve on School committees
- Foster the School’s relations with industry, government departments, professional bodies and the wider community
- Any other duties as reasonably directed by your supervisor

**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 will report directly to Prof Matthew Dargusch in the School of Mechanical and Mining Engineering who is also the Director of the AMMD Hub, Prof John Fraser in the Faculty of Medicine and CCRG, and to the ICETLAB Technical Director.
SELECTION CRITERIA

**Essential**

- PhD or equivalent in mechanical engineering or medical engineering
- Demonstrated ability to engage in independent and team research and an established record of publication in high quality journals, including an ability to achieve national recognition in the area
- Ability and willingness to be a chief investigator in applications for external research funding
- Ability and willingness to contribute to the effective supervision of honours and Higher Degree by Research (HDR) students
- Proven ability to work well within a team environment but capable of achieving significant outcomes with minimal supervision
- Demonstrated high-level interpersonal skills including the ability to communicate, consult and negotiate with other stakeholders to ensure project objectives are met
- A track record of publication of original research in reputed peer-reviewed journals and conferences
- Evidence of contribution to research, including successful external grant applications
- An ability to establish effective relationships and to represent and promote the research area at university and wider community level, including industry, government and professional bodies
- Demonstrated teaching skills at undergraduate and postgraduate levels

**Desirable**

- At least two years of industry experience in mechanical engineering
- Experience in one or more of:
  - generating complex models for device development using SolidWorks, AutoCAD or similar programs used for rapid prototyping techniques
  - developing systems for in vitro evaluation and coordinate in vitro evaluation of mechanical circulatory and respiratory support systems

**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.