POSITION DESCRIPTION

Position Title: Research Fellow – Mechanical/Biomedical Engineering
Organisation Unit: School of Mechanical and Mining Engineering
Position Number: TBA
Type of Employment: Full-time, Fixed term for 2 years
Classification: 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 (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://uniqest.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.

Our people are our greatest asset. We offer collaborative, inclusive work and study places, which are enriched by the significant diversity of our staff, students and community. We genuinely believe that creativity and innovation flourishes in an environment where people feel supported, valued and empowered. Mutual respect, inclusivity and accountability are at the cornerstone of UQ’s culture.

The School is committed to supporting the career growth of women researchers and have a number of initiatives to support women in developing and achieving a fulfilling research career at the School.

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 Research Fellow – Mechanical/Biomedical Engineering position will work within a collaboration between the Critical Care Research Group’s (CCRG – www.ccrg.org.au) 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 located within Australia’s largest cardiac hospital (The Prince Charles Hospital, Chermside, QLD, Australia) and only a two minute walk to the operating theatres and intensive care units where clinical and patient feedback can be obtained and only a five minute walk from QUT’s Medical Engineering and Research Facility (MERF) where animal studies can be conducted. ICETLAB research projects centre on cardiovascular engineering, with the primary aim of improving outcomes for heart and lung failure patients receiving mechanical circulatory and respiratory 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 now houses approximately 15 full- or part-time researchers of postdoctoral, PhD, Masters, or undergraduate levels with expertise including medical, mechanical and electrical engineering, biological and health sciences and manufacturing. Furthermore, the ICETLAB
closely collaborates with CCRG’s Scientific and Translational Research Laboratory (STARLAB) to form a silo free research environment between engineers, scientists, clinicians and patients. This research environment allows for rapid translation from bench-top testing to animal trials and clinical implementation. The ICETLAB is a key component and contributor to 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

The School 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 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.

Further 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 Research Fellow – Mechanical/Biomedical Engineering is responsible for supporting the development and evaluation of mechanical circulatory and respiratory support devices in line with the research objectives of the ICETLAB, CCRG and AMMD Hub and in collaboration with scientists, biologists and clinicians within the CCRG, STARLAB and TPCH. Particular focus will be on the design and manufacturing of ventricular assist devices and other cardiac assist devices and the evaluation and validation of the respective devices and systems. With a strong background in manufacturing or material sciences, the research fellow will investigate new manufacturing processes and materials to improve ventricular assist device technology. The role will include recruitment and 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, CCRG, STARLAB, 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 aligned with the ICETLAB’s and AMMD Hub’s vision 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, STARLAB, ICETLAB, AMMD Hub, national and international partners.
- Strengthen the reputation and expertise of the ICETLAB, AMMD Hub, CCRG, STARLAB and University within the research field of mechanical circulatory and respiratory support in collaboration with ICETLAB, AMMD Hub, CCRG and STARLAB staff.
- Work with colleagues and postgraduates in the development of joint research projects.
- Prepare 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 recruitment and supervision of honours and postgraduate students.
- Contribute to guest lectures at collaborating Universities.

**Service and Engagement**

- Perform a range of administrative functions in CCRG, the School and ICETLAB.
- 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 and the relevant CCRG committee.
- Foster the School’s relations with industry, government departments, professional bodies and the wider community. Have an ‘outward-facing role within the ICET Lab working with industry and other researchers.
- Represent the ICETLAB and CCRG at relevant events of The Prince Charles Hospital Foundation
• 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

- PhD or equivalent in mechanical engineering or medical/biomedical engineering with a specialization in manufacturing or material sciences.
- Ability and willingness to be a chief investigator in applications for external research funding; including successful external grant applications.
- Ability and willingness to contribute to the effective recruitment and 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 independently 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, high quality peer-reviewed journals and conferences.
- Evidence of contribution to research.
- 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 including an ability to achieve national recognition in the area.
- Experience in one or more of:
  a. generating complex models for device development using SolidWorks, AutoCAD or similar programs used for rapid prototyping techniques
  b. developing systems for in vitro evaluation and coordinate in vitro evaluation of mechanical circulatory and respiratory support systems
- Demonstrated teaching skills at undergraduate and postgraduate levels.

**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](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.