POSITION DESCRIPTION

Position Title: Postdoctoral Research Fellow
Organisation Unit: School of Mechanical and Mining Engineering
Position Number: NEW
Type of Employment: Full Time, Fixed Term until 31st December 2018
Classification: Research Focused Academic Level A

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

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.

The successful applicant will work in the Centre for Hypersonics which is a research centre within the School of Mechanical and Mining Engineering. Hypersonic aerodynamics has been a major research activity at The University of Queensland over the last 20 years. The researchers in this group have been active internationally and, during that period, have been involved in collaborative research programs with about 20 universities and research organisations around the world.

The Centre for Hypersonics at UQ aims to maintain a high level of activity in both fundamental and applied research and provide graduate and undergraduate training opportunities of the highest international standards.

For more information about the School, please visit: http://www.mechmining.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

To work on and complete the underlying Advance Queensland Research Fellowship project on Hydrocarbon Fuelled, High Mach Number Scramjets.

Duties

Duties and responsibilities include, but are not limited to:

Research

- Conduct computational simulations and experimental design work in order to develop a concept scramjet combustor to work with hydrocarbons at very high speeds (typically flight Mach numbers ranging from 7 to 8).
- Conduct research and publish scholarly papers relevant to the above topic.
- Carry out detailed experimental campaigns (as lead or in support of aligned PhD projects) at UQ’s T4/X3-R shock tunnel to demonstrate the viability of candidate scramjet combustor designs.
- Support development of research proposals for external agencies in aligned topics.
- Support development of PhD student researchers and contribute to maturing their work into journal articles as necessary.

Teaching and Learning

- Teach into late year undergraduate courses in aerospace propulsion, and related courses on heat transfer/reacting flow.
- Provide supervision of undergraduate/postgraduate thesis projects, masters and PhD students engaged in the project.

Service and Engagement

- Perform a range of administrative functions in the laboratory and/or research group as needed, including an ability and willingness to serve as a Laboratory Manager if required;
- Foster relations with industry (including international partners), government departments, professional bodies and the wider community;
- Provide support to other staff if required during absences;
- 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 reports to Dr. Anand Veeraragavan, Senior Lecturer, School of Mechanical & Mining Engineering.
SELECTION CRITERIA

**Essential**
- PhD in the area or significant progress towards the award of a PhD in Mechanical/ Aerospace Engineering with a strong focus on high-speed propulsion.
- Ability to procure Baseline security clearance as the project is co-funded by Australian Defence Science and Technology Group.
- Demonstrated expert knowledge in the area of computational hypersonics and ability to run and process simulations in super-computers.
- Strong understanding of functioning of impulse facilities and experience in undertaking detailed experimental campaigns in high Mach number facilities such as UQ’s T4 shock tunnel.
- Track record of high quality peer-reviewed journal publications in scramjet propulsion;
- Ability to effectively present research findings to a broad range of audiences.
- Ability and willingness to promote and adhere to a positive safety culture, and to develop new OH&S procedures and documentation.
- Demonstrated high level of drive and enthusiasm.
- Demonstrated high-level interpersonal, written and verbal communication skills.
- Ability to work collaboratively with internal and external stakeholders.
- Willingness to work out of both UQ based and DST Group Brisbane offices.

**Desirable**
- Demonstrated skills in assisting teaching at undergraduate and postgraduate levels
- Developed industry liaisons and professional contacts.
- Experience in liaising and collaborating with external agencies to develop co-operative research initiatives.

**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.