

POSITION DESCRIPTION

Position Title:	Research Fellow In Robotics and AI
Organisation Unit:	School of Information Technology and Electrical Engineering
Position Number:	New
Type of Employment:	Full-time, Fixed Term 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 CWTS Leiden Ranking (32), the Performance Ranking of Scientific Papers for World Universities (40), the US News Best Global Universities Rankings (42), QS World University Rankings (47), Academic Ranking of World Universities (54), and the Times Higher Education World University Rankings (66). Excluding the award component, UQ is now ranked 45th in the world in the ARWU, and is one of the only two Australian universities to be included in the global top 50.

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 53,000-plus strong student community includes more than 16,400 postgraduate scholars and more than 17,000 international students from 135 countries, adding to its proud 260,000-plus alumni. The University has more than 6,600 academic and professional staff (full-time equivalent) and a \$2.15 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+.

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

School of Information Technology & Electrical Engineering

It is an exciting time to get involved with the School of Information Technology and Electrical Engineering, located on UQ's St. Lucia campus. The School is ramping up its investment in teaching, research and engagement to create an inspiring, diverse and flexible workplace. The direction is backed by a bold, new strategic vision to ensure the School is at the forefront of meaningful research outcomes and pedagogy across its core impact areas of health, data, automation and energy. Boasting strong student enrolments in professionally accredited programs, combined with world-class researchers and facilities, the School is focused on strengthening its position in the global computer science and engineering communities. By attracting the brightest minds and fostering a truly innovative and collaborative work environment, the School will develop global solutions to contemporary issues and mentor the leaders of tomorrow.

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.

Details of the School may be accessed on its website at <http://www.itee.uq.edu.au/>.

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

To undertake research in a new collaboration between CSIRO's Robotics and Autonomous Systems Group (RASG) and ITEE/UQ in the broad area of AI-Enhanced Robotics (AI-R).

Collaboration with the Robotics and Autonomous Systems Group, CSIRO

This initiative is funded through a Collaborative Research Project (CRP) between CSIRO and UQ, and is led jointly by two Principal Investigators (PIs): a RASG researcher and an ITEE faculty member.

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) is Australia's national science agency, and is one of the largest and most diverse research organizations in the world (www.csiro.au). It is classed in the top 1% of research organizations worldwide in 14 of 22 research fields, and in the top 0.1% in four research fields.

The CSIRO Robotics and Autonomous Systems Group (RASG) is part of the Cyberphysical Systems Research Program (CPS) of Data61, which is CSIRO's digital technologies division (<https://www.data61.csiro.au>). RASG is one of the leading applied robotics and autonomous systems research labs in the world (<https://research.csiro.au/robotics/>). It has over 50 researchers and engineers, as well as many graduate students, research interns, and visiting scientists. RASG has extensive laboratory facilities and research infrastructure, and has a broad spectrum of collaborations with other CSIRO research units and with many universities and research centres in Australia and abroad. It is located at the Queensland Centre for Advanced Technologies (QCAT) in Pullenvale, Brisbane.

Research areas of particular interest in AI-Enhanced Robotics include autonomous spatio-temporal mapping and modelling of indoor and outdoor environments; planning of complex, long-term missions "in the wild", autonomous recognition of and reasoning about static and dynamic entities in the world, and robot-enabled autonomous discovery.

Duties

Duties and responsibilities include, but are not limited to:

Research

- Develop research projects defined within the RASG/ITEE collaboration on AI-Enhanced Robotics.
- Develop new research concepts and to explore funding opportunities and prepare proposals and grant applications to help grow the AI-R collaboration.
- Time will be spent between ITEE and QCAT, collaborating closely with scientists, engineers and students on AI-R projects.
- Conduct research and publish scholarly papers in academic peer-reviewed conferences and journals.

Teaching and Learning

- Teach into undergraduate and postgraduate courses (20% workload allocation) as defined in agreement between ITEE and RASG.
- Attract, teach and supervise research honours and postgraduate students in AI-R projects.

- Abide by University Rules relevant to teaching and learning practices.

Service and Engagement

- Communicate effectively and respectfully with all staff, clients and stakeholders in the interests of outstanding science, ethical business practices, deep collaboration and enhancement of ITEE's and CSIRO's reputation.
- Participate in appropriate training and development programs as required by ITEE and CSIRO.
- Create, foster and enhance national and international links with relevant industry, government departments, universities, professional bodies and the wider community.
- Any other duties as reasonably directed by the AI-R PIs.

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 Associate Professor Pauline Pounds within the School of Information Technology and Electrical Engineering and to the CSIRO Chief Research Scientist, at the Robotics and Autonomous Systems Group, CPS/Data61/CSIRO.

SELECTION CRITERIA

- PhD in a relevant field, including computer science or engineering, robotics, mechatronics, electrical or mechanical engineering, etc.
- Demonstrated expert knowledge in at least two areas including but not limited to robotics, machine learning and artificial intelligence, control theory and adaptive systems, and cognitive systems.
- A track record of original thinking and fresh approaches to intelligent systems or robotics research, including a promising publication record.
- Demonstrated teaching skills at undergraduate and postgraduate levels and an active and effective record of contribution to supervision of honours and postgraduate students
- An ability to establish effective working relationships in the academic community, as well as with industry, government and professional bodies.
- Ability to carry out independent research as well as to work collaboratively with others in multi-disciplinary research projects.

Desirable

- Demonstrated expert knowledge in areas including but not limited to adaptive control, system modelling and identification, Bayesian modelling and inference, and cognitive architectures for robotics.
- Strong software development skills using modern robotics programming frameworks and languages.
- Practical experience in systems thinking and developing experimental robot systems.

We welcome applications from engineers and computer scientists with expertise in robotics, control theory, machine learning and artificial intelligence. Experience in system modelling and identification, adaptive systems, adaptive control, Bayesian modelling and inference, and cognitive architectures for robotics will be highly regarded. Experience in systems thinking, development of robot software, and field robotics will also be considered of high value.

Seminar

Applicants invited for interview may be expected to present a seminar in conjunction with the selection interview process.

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](#) 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 recruitment@uq.edu.au.