POSITION DESCRIPTION

Position Title: Research Officer/Postdoctoral Research Fellow – Machine Learning & Data Fusion
Organisation Unit: Queensland Alliance for Agriculture and Food Innovation
Position Number: NEW
Type of Employment: Full time, Fixed term
Classification: Research 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 (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://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 Queensland Alliance for Agriculture and Food Innovation (QAAFI) is a research institute of the University of Queensland (UQ) which was established in 2010 and comprises of four research centres – the Centre for Crop Science, the Centre for Horticultural Science, the Centre for Animal Science and the Centre for Nutrition and Food Sciences.

QAAFI’s team of 450 researchers, postgraduate students and support staff undertake high impact science for agriculture and food industries. The institute’s strong partnership with the Queensland Government provides our researchers with a direct link to the agriculture industry in Queensland, and world class field research facilities throughout Queensland. Agriculture is one of UQ’s highest ranked research fields nationally and internationally and QAAFI is a global leader in agricultural research in subtropical and tropical production systems.

QAAFI scientists are driven to make a difference to the agriculture and food industries and have over 150 collaborators worldwide.

Details of the research interests of the Institute may be accessed on the Institute’s web site at http://www.qaafi.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 undertake the development of data fusion algorithms integrating multi-modal machine learning, remote sensing and crop modelling in support of the GRDC funded “CropPhen: Remote mapping of grain crop phenology and crop type prediction” project lead by UQ QAAFI (Project : UoQ2002-010RTX).
Duties

Duties and responsibilities include, but are not limited to:

Research

- Undertake fundamental research in the area of applied machine learning to fuse crop simulation and hyperspectral earth observation (EO) data for the purpose of enhancing prediction of crop phenology and take an active role in the project.
- Document research findings and publish scholarly papers in high-quality refereed international journals, books and conference proceedings.
- Work with colleagues and postgraduates to develop new research avenues and build collaborative projects within the School, the University, and if relevant to the area of research, other national and international centres and institutes.
- Attend technical meetings with research sponsors, and present regular research seminars within the group, the School, the Faculty, and to other external stakeholders.
- Actively seek and gain research funding from internal and external sources including the Commonwealth research granting agencies, the state government and industry.

Teaching and Learning

- Contribute to the effective supervision and mentorship of higher degree by research (HDR) students, as well as undergraduate and postgraduate thesis students.
- Assist in the delivery of lectures, tutorials and practical classes, and mark assessment as required.

Service and Engagement

- Actively develop external links by fostering relationships with industry, government departments, professional bodies and the wider community.
- Efficiently manage allocated internal service roles and processes, including participation in decision-making and service on relevant committees.
- Perform a range of administrative functions as required.
- 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 Senior Research Fellow, Dr Andries Potgieter.

SELECTION CRITERIA

Essential

- Completion or near completion of a PhD in the area of Machine Learning, Data Science, Computational Mathematics/Physics or a closely related discipline with a strong background in either Crop Physiology, Crop Modelling and/or Remote Sensing.
- Demonstarted experience in the area of design and application of multi-modal data fusion algorithms to support systems modelling.
- Demonstrated knowledge and skills in:
  - cloud based e.g. Google Earth Engine) and or high performance computing platforms
  - ML software and libraries such as TensorFlow and/or Pytorch.
  - programming skills and ability to develop, conduct and analyse large data sets experiments.
- Evidence of publications in reputed refereed journals and presenting at conferences.
- Evidence of contributions towards successfully obtaining external research funding.
- Evidence of an emerging network of industry liaisons and professional contacts.
- Well-developed communication, interpersonal and consultative skills and the ability to work collaboratively with colleagues from a multidisciplinary background.
Desirable

- Knowledge and experience in plant/crop development.
- Evidence of contribution to successful external grant applications.
- 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 recruitment@uq.edu.au