



# Postdoctoral Fellow in 3D Mapping of Bone Fractures using Statistical Shape Modelling

FACULTY OF ENGINEERING  
ACADEMIC DIVISION



## About the Position

Located within the School of Mechanical, Medical and Process Engineering (MMPE), in the Faculty of Engineering (FOE), the position is part of the Medical Devices Theme of the ARC Training Centre for Multiscale 3D Imaging, Modelling and Manufacturing (M3D) <https://m3d.edu.au/>

The proposed project is closely related to the ongoing PhD project "Solving the Fracture Puzzle" <https://m3d.edu.au/projects/p5-5.html> conducted with industry partner Stryker Trauma, Germany.

The Postdoctoral Fellow will conduct research on developing and validating methods for the 3D mapping of anatomically reduced bone fractures utilising Statistical Shape Modelling (SSM). The Postdoctoral Fellow will be working closely with researchers from public and private sectors.

The Postdoctoral Fellow will also assist with the supervision of the PhD students working on the related project.

This position reports to the Senior Research Fellow for supervision, workload management and for Performance Planning and Review (PPR).

### Key responsibilities include:

- Undertake research on developing and validating methods for 3D mapping of anatomically reduced bone fractures utilising SSM
- Make use of Stryker's Bits Of Nature software framework and its SOMA Database
- Undertake programming tasks using Bits Of Nature framework – a feature rich software framework for medical image processing - which helps to focus on actual research.
- Undertake image processing, and 3D mesh processing/rendering
- Handle medical imaging formats such as DICOM
- Able to conduct programming using C# or similar programming
- Write and contribute to academic research papers suitable for publication in Q1, D1 journals
- Prepare and apply for competitive grant funding, namely ARC DECRA
- Implementing and administering University policy within the Faculty with respect to

equitable access to education and workplace health and safety.

To ensure job flexibility the successful appointee may be required to:

- perform any other duties as nominated by the University consistent with the relevant classification descriptors detailed in the Enterprise Agreement. Staff undertaking any new duties will receive training;
- participate in job rotation or multiskilling in consultation with their supervisor;
- work across campuses

To be appointed as a Postdoctoral Fellow, the successful applicant must meet the position classification standards outlined in the [QUT Enterprise Agreement \(Academic Staff\)](#).

### Type of appointment

This appointment will be offered on a fixed-term, part-time (21.75 hrs per week) basis for one (1) year.

### Location

Kelvin Grove campus.

## Selection Criteria

1. Completion of a PhD qualification in Informatics, Computer Science, Physics or closely related fields.
2. Experience in image processing, 3D mesh processing/rendering, handling of medical image formats such as DICOM, as well as the ability to conduct programming tasks using C# or similar modern programming languages.
3. Demonstrated academic research experience in as evidenced by publications in high quality research journals.
4. Demonstrated experience in grant writing and securing competitive research funding, or the ability to rapidly acquire this knowledge.
5. Strong interpersonal and communication skills and a demonstrated capacity to work collaboratively and proactively as part of a multi-disciplinary and multi-institution research team, as well as proven ability to work effectively with minimal supervision.
6. Proven ability to use initiative and contribute new ideas to research, along with a demonstrated adherence to ethical standards in research confidentiality.

## Remuneration and Benefits

The classification for this position is Academic Level A (LEVA) which has an annual remuneration range of \$82,249 to \$111,605 pa. Which is inclusive of an annual salary range of \$69,501 to \$94,307 pa and 17% superannuation.

In July 2020 QUT staff voted in favour of a variation to its Enterprise Agreements. The variations were approved by the Fair Work Commission in August 2020.

The variation impacts leave loading (for new staff no loading will be paid or accrued during the period the variation is in effect), salary increases (the salary increase which was due to occur in the first full pay period of December 2020 was deferred until the first full pay period of December 2021, however it has been brought forward by the Vice-Chancellor to be paid in June 2021) and superannuation (superannuation will be paid to staff as though the salary increase which would have been paid in December 2020 has taken effect and, subject to the rules of the superannuation fund, a defined benefit member will continue to make contributions in alignment with the contributions made by the University). A link to the variation is [here](#).

Beyond personal and professional fulfilment, a career at QUT brings a broad range of tangible benefits. With competitive remuneration including superannuation, the University offers real and generous benefits.

QUT is a high quality and flexible organisation that is proud of its excellent employment conditions which include but are not limited to:

- Reduced working year scheme
- Parental leave provisions
- Study support encompassing leave and financial assistance
- Comprehensive professional development
- Salary Packaging

Further benefits can be found at the [Life at QUT](#) page.

## Information for applicants

The position is open to applicants who have unrestricted work rights in Australia for the full duration of the fixed-term appointment. In support of our strategic priority of Indigenous Australian success, Aboriginal Australians and Torres Strait Islander people are encouraged to apply.

For further information about the position, please contact Dr Beat Schmutz, on (07) 3138 6238; or for further information about working at QUT contact Human Resources on (07) 3138 5000.

Candidates who are interested in the position are encouraged to apply even though they may feel they are not strong on individual selection criteria.

In assessing merit, the panel will take into consideration “performance or achievement relative to opportunity”. We recognise that many staff today have a range of personal circumstances, and career histories that challenge traditional ideas of an academic staff member. This may mean, for example, prioritising the quality of achievement rather than the quantity, as considerations of part-time employment, career interruptions and significant periods of leave are taken into account when assessing performance or achievement.

The selection panel is also committed to conducting a process which is fair and free from bias, including unconscious bias.

## How to Apply

For further information and to apply, please visit [www.qut.edu.au/careers](http://www.qut.edu.au/careers) for reference number **211156**.

When applying for this position your application must include the following:

- A current resume
- A statement of your achievements against each of the selection criteria
- The names and contact details of two referees

**Applications close 12 November 2021**

## About QUT

QUT is a major Australian university with a global outlook and a 'real world' focus. We are one of the nation's fastest growing research universities and our courses are in high demand.

We are an ambitious and collaborative institution that seeks to equip our students and graduates with the skills they will need in an increasingly disrupted and challenged world.

We are transforming the student experience we offer our 50,000 students and we place a premium on the international and national accreditation of our various professional degrees.

We offer academic programs in fields spanning business, creative industries, education, engineering, health, law, science, and social justice across five faculties.

We are transforming the learning experience and embed work integrated learning in courses and have a strong focus on developing entrepreneurial skills. QUT provides executive education and professional development to both individuals and organisations through QUTeX, and QUT Online lets students learn when it suits, through courses delivered entirely online. QUT College offers pathways for all students into our undergraduate programs.

QUT has two inner-city campuses in Brisbane at Gardens Point and Kelvin Grove.

Well known for our strong links to industry and government, the high impact of our research which involves multidisciplinary teams, QUT has been named one of the fastest rising universities in the world for scientific research.

Further information about QUT can be obtained from the website at [www.qut.edu.au](http://www.qut.edu.au).

### Our Vision

QUT's [Blueprint 6](#) is our institutional strategic plan. The Blueprint formalises QUT's ambitions and declares our strong sense of purpose which is to provide transformative education and research relevant to our communities. It provides a framework and strategies to enable QUT to realise our vision to be the university for the real world and identifies the following priorities:

- support aspiration and inclusion
- encourage creativity and entrepreneurship
- embrace digital transformation and technology
- embed principles of health and wellbeing
- support Indigenous Australian engagement, success and empowerment
- enable professional engagement and ethical leadership and,
- focus on the environment and sustainability

Aligned to and supporting our vision are the QUT Values. These Values highlight what makes QUT distinct and successful. Providing a compass for our decisions, actions and behaviours and strengthening our community.

### QUT Values

- Ambition
- Curiosity
- Innovation
- Integrity
- Inclusiveness

## About the Academic Division

Academic Division includes the University's faculties and research centres. It is responsible for education (learning and teaching), research, research services and support, and digital business solutions. The Academic Division is led by the Provost.

## About the Faculty

The Faculty of Engineering aims to shape the world we live in by engineering sustainable, innovative and liveable environments. Our programs focus on teaching, research and building a better quality of life through advancements in robotics, manufacturing, AI, architecture, and construction.

The Faculty adapts and innovates infrastructure to meet real world challenges such as overpopulation, natural disasters and climate change. We pursue high-level engagement with a range of sectors to deliver benefits across health, transport, aero-space, manufacturing, mining and agriculture.

Through long-standing collaborations with partners such as BMW, Boeing, Stryker, Shell and the Commonwealth Bank of Australia, the Faculty remains at the forefront by facilitating learning that is delivered on campus, online and in the real world. Strong industry connections enable us to address complex challenges through research and innovation, as well as offer our students relevant and practical learning experiences.

Our Schools are established around disciplines that promote collaboration in teaching and research. These include the:

- School of Architecture and Built Environment
- School of Civil and Environmental Engineering
- School of Electrical Engineering and Robotics
- School of Mechanical, Medical and Process Engineering.

The Faculty is also home to outstanding researchers of international renown that collaborate with partners to improve systems in robotics, medical, mechanical, mining, food and beverages, oil and gas, energy, water and sugar. Our Research Centres include:

- Centre for Biomedical Technologies
- QUT Centre for Robotics
- Centre for Transformative Biomimetics in Bioengineering
- Australia-China Centre for Tissue Engineering and Regenerative Medicine

The Faculty is led by the Executive Dean and the Executive Management Team comprising the deputy dean, heads of schools, and other senior faculty staff.

## About the School of Mechanical, Medical and Process Engineering

The School of Mechanical, Medical and Process Engineering delivers education and research into the design, manufacture and operation of Biomedical, Chemical and Mechanical systems and processes.

The School works across all scales, from nanoscale to personal devices to industrial complexes. The School builds on the engineering principles of Mechanics, Thermodynamics and Materials Engineering to create new and emerging technologies including Biofabrication, Advanced Manufacturing and Chemical Processing.

We innovate to create new system such as medical devices, new energy and environmental systems, and industry 4.0. We work with partners to improve existing systems in medical, mechanical, mining, food and beverages, oil and gas, energy, water, sugar and chemical engineering.