POSITION DESCRIPTION

THE UNIVERSITY OF MELBOURNE

School of Mathematics and Statistics
Faculty of Science

MathQuEST Postdoctoral Researcher on Quantum Optimisation

POSITION NO	3557426
CLASSIFICATION	Level A
SALARY	$87,266 - $118,416 per annum (pro rata for part-time) (*PhD entry level $110,319 p.a.)
SUPERANNUATION	Employer contribution of 17%
WORKING HOURS	Full time (1 FTE) or part-time, subject to visa restrictions
BASIS OF EMPLOYMENT	Fixed term available for 4 years **FLEXIBLE EMPLOYMENT** The University of Melbourne is strongly committed to supporting diversity and flexibility in the workplace. Applications for part-time or other flexible working arrangements will be welcomed and will be fully considered subject to meeting the inherent requirements of the position.
OTHER BENEFITS	https://about.unimelb.edu.au/careers/staff-benefits
HOW TO APPLY	Online applications are preferred. Go to http://about.unimelb.edu.au/careers, select the relevant option ('Current Opportunities' or 'Jobs available to current staff'), then find the position by title or number.
CONTACT FOR ENQUIRIES ONLY	Dr Lindon Roberts Tel +61 3 8344 5550 Email lindon.roberts@unimelb.edu.au *Please do not send your application to this contact*

For information about working for the University of Melbourne, visit our website:
about.unimelb.edu.au/careers

Last Reviewed: 01/04/2026

Acknowledgement of Country

The University of Melbourne acknowledges the Traditional Owners of the unceded land on which we work, learn and live: the Wurundjeri Woi Wurrung and Bunurong peoples (Burnley, Fishermans Bend, Parkville, Southbank and Werribee campuses), the Yorta Yorta Nation (Dookie and Shepparton campuses), and the Dja Dja Wurrung people (Creswick campus).

The University also acknowledges and is grateful to the Traditional Owners, Elders and Knowledge Holders of all Indigenous nations and clans who have been instrumental in our reconciliation journey.

We recognise the unique place held by Aboriginal and Torres Strait Islander peoples as the original owners and custodians of the lands and waterways across the Australian continent, with histories of continuous connection dating back more than 60,000 years. We also acknowledge their enduring cultural practices of caring for Country.

We pay respect to Elders past, present and future, and acknowledge the importance of Indigenous knowledge in the Academy. As a community of researchers, teachers, professional staff and students we are privileged to work and learn every day with Indigenous colleagues and partners.

Position Summary

MathQuEST is the ARC Centre of Excellence in Mathematics for Quantum Era Security & Trust. This position is funded by MathQuEST; the appointee will automatically become a member of the Centre and they are expected to actively engage with its network and activities to help advance the Centre's aims and objectives.

The proposed start date for this position is 1 March 2027.

The postdoctoral researcher will be responsible for contributing to the MathQuEST research programme, focusing on a research project in quantum methods for combinatorial optimisation. Reporting to MathQuEST Chief Investigators (CIs), Dr Lindon Roberts and Prof Kate Smith-Miles, this project aims to build improved approaches to variational quantum algorithms in a broad sense, investigating both modelling and algorithmic advances. Under the guidance of MathQuEST CIs (including those with an interest in VQAs based at other universities), there will be considerable scope for the researcher to develop their own ideas and be involved with the supervision of postgraduate students.

The MathQuEST vision is to undertake transformational interdisciplinary research founded on mathematics that will underpin new algorithms to protect our future, empower discovery, and increase trust in an age that will be shaped by quantum computers. Its core mission is to do so by creating a high-quality, inclusive and collaborative research culture to grow a mathematically trained, technologically agile workforce that will support Australia’s sovereign capability. All members of the Centre will have the opportunity to develop communication skills, participate in outreach, and receive mentoring and training to engage with society and industry at all levels. The Centre will be grounded in a culture of inclusion, diversity, and engagement of talented people at all levels, to cultivate discovery. MathQuEST supports a flexible, family-friendly working environment. Subject to visa restrictions, this opportunity is available as either a full-time or part-time position.

The University of Melbourne provides an excellent environment for research in quantum optimisation. The School of Mathematics and Statistics at the University of Melbourne has considerable expertise in operations research, including optimisation algorithms, modelling and applications across many areas of industry. The university is home to Australia’s only IBM

Quantum Hub and the Melbourne Initiative for Quantum Technology supports quantum researchers from across the university.

We encourage applicants from under-represented groups, including Aboriginal and Torres Strait Islander people. To allow us to consider performance relative to opportunity, we also invite applicants to provide a brief statement (up to 1 page) that describes circumstances that may have affected their career development or progression, including career interruptions or delays, periods of part time work, or forms of bias they have experienced.

1. Key Responsibilities

As with all positions, career achievements will be interpreted relative to opportunity, including career disruptions due to caring responsibilities, time in industry, illness etc.

The position description should be read alongside Academic Career Benchmarks and Indicators.

A level A academic is acquiring skills and building academic achievements (oriented towards the benchmarks).

1.1 RESEARCH AND RESEARCH TRAINING

The appointee will be expected to:

- You are expected to significantly contribute towards the research effort of the team and to develop your research expertise with an increasing degree of autonomy
- Under the guidance and support of Senior Academic staff conduct internationally competitive research, resulting in publications in high impact journals
- Contribute to and publish academic papers and other scholarly outputs to a high academic standard in accordance with the research expectations of the University of Melbourne
- Actively participate in research seminars and conferences to disseminate research findings as opportunities arise
- Contribute to the preparation, or where appropriate individual preparation of research proposal submissions to internal or external funding bodies as relevant
- Undertake administrative functions and obligations primarily connected with the staff member's area of research
- Contribute to, and assist in the co-supervision and training of research students
- Engage with relevant professional and industry bodies and stakeholders to foster collaborative partnerships

1.2 EDUCATION AND LEARNING

The appointee will be expected to:

- Contribute to training, scientific mentoring and supervision of students
- Contribute to the effective supervision of junior research staff in the appointee's area of expertise

1.3 LEADERSHIP AND SERVICE

The appointee will be expected to:

- Actively participate in MathQuEST meetings and activities

- Contribute to, or present research to the public to elevate public awareness of educational and scientific developments, and promote critical enquiry and public debate within the community where appropriate
- Effective demonstration and promotion of University values including diversity and inclusion and high standards of ethics and integrity

1.4 OTHER DUTIES

The appointee will be expected to:

- Perform other tasks as requested by the supervisor or the Head of School
- Actively participate in the University Professional Development Framework
- Ensure timely completion of required University compliance courses and declarations, such as, but not limited to, Appropriate Workplace Behaviour, PDF for Staff and Supervisors and OH &S training courses, Conflict of Interest declarations and Foreign Interest disclosures
- Occupational Health and Safety (OH&S) and Environmental Health and Safety (EH&S) responsibilities as outlined in section 4

2. Selection Criteria

2.1 EDUCATION/QUALIFICATIONS

- Completion (or near completion) of a PhD in mathematical optimisation, quantum optimisation, or a related discipline

2.2 ESSENTIAL

- Demonstrated experience in the development, analysis and implementation of quantum algorithms, particularly for solving problems in discrete optimisation.
- A demonstrated aptitude for research, with a sound publication record in relevant areas, commensurate with experience and opportunities
- Demonstrated ability to prepare research reports and manuscripts for publication
- Strong evidence of ability and desire to build an academic research career trajectory
- Demonstrated ability to engage with relevant professional and industry bodies and stakeholders to foster collaborative partnerships
- Excellent interpersonal and both written and oral communication skills in English.
- Excellent ability to work co-operatively and positively in a multi-disciplinary research-based team environment and liaise with people from diverse backgrounds
- Demonstrated excellent organisational skills to meet deadlines and bring projects to a timely completion
- Demonstrated ability to develop, administer and see through to completion appropriately designed research projects with limited supervision

2.3 DESIRABLE

- The ability to attract external funding through grant applications and/or support in funded joint projects with others internal or external to the university
- Experience in assisting with supervision of students undertaking undergraduate or higher degree research projects

2.4 OTHER JOB-RELATED INFORMATION

- Occasional work out of ordinary hours, and travel may be required
- This position requires the incumbent hold a current and valid Working with Children Check. The University of Melbourne is dedicated to safeguarding the welfare of all community members, especially those most vulnerable. As part of our commitment to child safety and in line with the Victorian Child Safe Standards, this position will be required to hold a valid Employee WWCC, regardless of where in the University an employee may work or what work they do

3. Equal Opportunity, Diversity and Inclusion

The University is an equal opportunity employer and is committed to providing a workplace free from all forms of unlawful discrimination, harassment, bullying, vilification and victimisation. The University makes decisions on employment, promotion, and reward on the basis of merit.

The University is committed to all aspects of equal opportunity, diversity and inclusion in the workplace and to providing all staff, students, contractors, honorary appointees, volunteers and visitors with a safe, respectful and rewarding environment free from all forms of unlawful discrimination, harassment, vilification and victimisation. This commitment is set out in our Diversity and Inclusion Strategy 2030 that addresses diversity and inclusion, equal employment opportunity, discrimination, sexual harassment, bullying and appropriate workplace behaviour. All staff are required to comply with all University policies.

The University values diversity because we recognise that the differences in our people's age, race, ethnicity, culture, gender, nationality, sexual orientation, physical ability and background bring richness to our work environment. Consequently, the People Strategy sets out the strategic aim to drive diversity and inclusion across the University to create an environment where the compounding benefits of a diverse workforce are recognised as vital in our continuous desire to strive for excellence and reach our strategic targets.

4. Occupational Health and Safety (OHS)

All staff are required to take reasonable care for their own health and safety and that of other personnel who may be affected by their conduct.

OHS responsibilities applicable to positions are published at:

https://safety.unimelb.edu.au/people/community/responsibilities-of-personnel

These include general staff responsibilities and those additional responsibilities that apply for Managers and Supervisors and other Personnel.

5. Governance

The Vice-Chancellor is the Chief Executive Officer of the University and responsible to Council for the good management of the University.

Comprehensive information about the University of Melbourne and its governance structure is available at https://about.unimelb.edu.au/strategy/governance

6. Strategy 2030: Resilience

As set out in the University of Melbourne's Strategy 2030, our purpose is to benefit society through the transformative impact of our education and research. This can only be achieved by building a resilient institution, empowering our people, and working toward shared ambitions.

Our aspiration for 2030 is to be a world-leading, globally connected Australia university with students at the heart of everything we do. Strategy 2030 provides a sharp focus to advance our shared ambitions and guide us through to 2030.

It elevates three core ambitions:

• Exceptional Education: Educating our outstanding students to thrive in complexity

• Transformational Research: Creating knowledge, fostering innovation and transforming lives

• Our Resilient University: Serving and connecting Country, people and community

The strategy identifies our University's distinctive capabilities including Indigenous scholarship, world-class curriculum, our diverse community and our global research networks and precincts.

Four focus areas for action guide decision-making and ensure the University is equipped for challenges ahead. These are: Empowering people and performance, Improving student experience, Partnering for impact and Leading with a future-focus.

For more information, visit https://about.unimelb.edu.au/strategy/strategy-2030

7. Other Information

7.1 ORGANISATION UNIT

https://ms.unimelb.edu.au/

The University of Melbourne's School of Mathematics and Statistics is one of Australia's leading mathematics and statistics schools. It has achieved this status through the high quality of its research and teaching programs. The School offers a wide range of subjects to undergraduate and postgraduate students and is involved in aspects of community life that impact on the interests of the School and the discipline.

The School of Mathematics and Statistics has a total of 90 continuing teaching and/or research staff; 37 research only staff and consultants; 19 academic specialists and 16 support staff. In 2023, there were 143 Research Higher Degree and 189 Coursework Master of Science students. The School has had 10 staff members inducted as Fellows of the Academy of Science.

Infrastructure support for research and basic information technology facilities are provided to all members of the department. Special facilities such as high-end workstations and salaries for research fellows are supported through individual competitive external research grants. Members of the School have had considerable success at attracting support from the Australian Research Council. The school currently hosts one ARC Centre of Excellence and one ARC Industrial Transformation Training Centre, and has hosted four ARC Laureate Fellows, thirteen ARC Future Fellows and twenty-four DECRA Fellows.

It is one of the objectives of the University to develop and maintain a strong international profile. In this context, members of the School have strong collaborative links with colleagues worldwide.

7.2 FACULTY OF SCIENCE

www.science.unimelb.edu.au

Science at Melbourne is a global leader across discovery and applied scientific research and education. Science begins with curiosity, and we are dedicated to understanding the universe from the level of sub-atomic particles to the solar system. We aim to be leaders who positively impact the community locally and globally, addressing major societal issues from climate change to disease. Our discoveries help build an understanding of the world around us.

Our strength is our breadth of expertise. The Faculty is home to seven schools: Agriculture, Food & Ecosystem Sciences; BioSciences; Chemistry; Geography, Earth & Atmospheric Sciences; Mathematics & Statistics; Physics; and Melbourne Veterinary School.

The Faculty is also custodian of the Bio21 Molecular Science and Biotechnology Institute, Melbourne Energy Institute, Melbourne Biodiversity Institute, Oceania Institute, Office for Environmental Programs, Australian Mathematical Sciences Institute (AMSI) and the Indigenous Knowledge Institute and home to numerous Centres.

We are committed to the values of curiosity, excellence, impact and integrity. With deep disciplinary knowledge our faculty is uniquely positioned to take a globally leading role in understanding, exploring and shaping our world and humanity, within a truly comprehensive Faculty of Science.

We have more than 150 years of experience in pioneering scientific thinking and analysis, leading to outstanding teaching and learning and offer a curriculum based on highly relevant research. We aim to train students with the knowledge and intellectual flexibility to drive the industries of tomorrow and lead across all levels of society.

We offer a range of undergraduate, honours, graduate and research degrees, enrolling and supervising 12,239 undergraduates, 3,384 Master's students and over 1,000 PhD researchers in 2025.

We are dedicated to delivering transformative educational outcomes, underpinned by research, and an inclusive and inspiring student experience.

Excellence comes in many forms and diversity of thought, perspective and disciplines is essential to deliver globally leading science. At the core of our success is our focus on an inclusive environment for all in our community. Our Faculty's focus on equity, inclusion and belonging is grounded in our endeavour to ensure we are best placed to advance research, teaching and serve diverse national and global communities.

As a Science community we sit across five of the University's campuses – Parkville, Dookie, Burnley, Creswick and Werribee. This reach provides us with a unique perspective that is beneficial to our teaching and research. It also means we can offer our students a greater variety of learning experiences and internships to engage with industry partners to solve real-world issues.

7.3 THE UNIVERSITY OF MELBOURNE

Established in 1853, the University of Melbourne is a leading international university with a tradition of excellence in teaching and research. The main campus in Parkville is recognised as the hub of Australia's premier knowledge precinct comprising eight hospitals, many leading research institutes and a wide-range of knowledge-based industries. With outstanding performance in international rankings, the University is at the forefront of higher education in the Asia-Pacific region and the world.

The University of Melbourne employs people of outstanding calibre and offers a unique environment where staff are valued and rewarded.

Further information about working at The University of Melbourne is available at http://about.unimelb.edu.au/careers