



POSITION DESCRIPTION

School of Computing and Information Systems
Melbourne School of Engineering

Research Fellow in Modelling and Simulation

POSITION NO	0049753
CLASSIFICATION	Level A
SALARY	\$72,083 - \$97,812 p.a
SUPERANNUATION	Employer contribution of 9.5%
WORKING HOURS	Full time (1.0FTE)
BASIS OF EMPLOYMENT	Fixed-term for two years
OTHER BENEFITS	http://www.eng.unimelb.edu.au/about/join-mse/why-join-mse
LOCATION	Parkville campus <i>This position may be required to travel to and work across multiple campuses</i>
CONTACT FOR ENQUIRIES ONLY	Dr Nic Geard Email nicholas.geard@unimelb.edu.au <i>Please do not send your application to this contact</i>

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

The University of Melbourne

Established in 1853, the University of Melbourne is a public-spirited institution that makes distinctive contributions to society in research, learning and teaching and engagement. It's consistently ranked among the leading universities in the world, with international rankings of world universities placing it as number 1 in Australia and number 32 in the world (Times Higher Education World University Rankings 2017-2018).

<https://about.unimelb.edu.au/strategy/growing-esteem>

Melbourne School of Engineering

Melbourne School of Engineering (MSE) has been the leading Australian provider of engineering and IT education and research for over 150 years. We are a multidisciplinary School organised into three key areas; Computing and Information Systems (CIS), Chemical and Biomedical Engineering (CBE) and Electrical, Mechanical and Infrastructure Engineering (EMI). MSE continues to attract top staff and students with a global reputation and has a commitment to knowledge for the betterment of society.

Our ten-year strategy, MSE 2025, is our School's commitment to bring to life the University-wide strategy *Growing Esteem* and reinforce the University of Melbourne's position as one of the best in the world. Investment in new infrastructure, strengthening industry engagement and growing the size and diversity of our staff and student base to drive innovation and develop the transformative technologies of the future are all fundamental principles underpinning MSE 2025.

<http://www.eng.unimelb.edu.au/about/join-mse/why-join-mse>

The School of Computing & Information Systems

The School of Computing & Information Systems (CIS) undertakes research and teaching across a range of information technology disciplines including Software Engineering, Information Systems, and Computer Science. It offers a comprehensive range of IT courses at all levels, including offerings in science, engineering, and business, and is at the forefront of computing research in Australia and internationally with close links to major computing research initiatives, including Melbourne Bioinformatics, IBM Research and CSIRO's DATA61.

The School's aim is to attract and retain outstanding staff available in order to maintain a leading research and teaching. We have an existing highly successful research team in the area of the appointment, a large number of PhD students, and a substantial cohort of graduate students in our coursework Masters programs.

To find out more about CIS, visit: <http://www.cis.unimelb.edu.au/>

Position Summary

A two-year postdoctoral position contributing to the development and application of computational models of infectious disease transmission and control is available at the University of Melbourne.

The human bacterial pathogen group A Streptococcus (StrepA) is one of the top ten infectious disease killers worldwide. Despite this, we have little understanding of how genetically diverse pathogenic strains are maintained in high burden settings, including remote First Nations communities in Australia. Data suggest that recombination – the process in which genetic material is exchanged between bacteria – plays an important role. This interdisciplinary project integrates microbial genomics and computational modelling to investigate the evolutionary and epidemiological dynamics of StrepA and related pathogens.

Project partner Dr Mark Davies and colleagues at The Peter Doherty Institute for Infection and Immunity have collected a substantial database of StrepA genome sequences. This project will explore the use of mathematical and computational modelling approaches to contribute to analysing this data.

A range of specific research projects are available, and the appointee may work across multiple research projects in a lead and collaborative capacity as part of an interdisciplinary team as appropriate. There are opportunities to tailor projects to the interests and skills of the appointee, and to seek grant funding to develop related, independent research.

The position reports to Dr Nic Geard and is based in the School of Computing and Information Systems. The University of Melbourne is home to a thriving infectious disease modelling research group, comprising members from computing, mathematics, population health and epidemiology, and leads a national Centre of Research Excellence in public health-oriented infectious disease modelling.

1. Selection Criteria

1.1 ESSENTIAL

- ▶ PhD in Computer Science or other discipline with a strong computational focus;
- ▶ Demonstrated ability to design, implement and test complex computational simulation models using good software engineering practices;
- ▶ A track record of quality research as evidenced by research publications in leading conferences and journals commensurate with opportunity;
- ▶ Demonstrated ability to perform independent research and a commitment to interdisciplinary research;
- ▶ Demonstrated experience in using initiative, working with minimal supervision and ability to prioritise tasks to achieve project objectives within timelines;
- ▶ Excellent written and verbal communication skills, demonstrated by presentation of research results at conferences, internal forums and through manuscript submissions.

- ▶ Excellent communication and interpersonal skills, including an ability to interact with internal and external collaborators and stakeholders from different disciplines and sectors in a courteous and effective manner;
- ▶ Enthusiasm for addressing research questions relevant to human health and wellbeing.

1.2 DESIRABLE

- ▶ Experience in developing and applying individual/agent-based models;
- ▶ Experience in developing models of infectious disease dynamics;
- ▶ Experience in working with genomic data;
- ▶ Experience in working in multi-disciplinary, cross-sectoral and/or cross-cultural work environments;
- ▶ Experience in supervision of postgraduate students.

2. Key Responsibilities

2.1 RESEARCH – ADVANCEMENT OF DISCIPLINE

- ▶ Independently plan and carry out research on the nominated research project and work towards completion of the aims of the project;
- ▶ Develop effective timelines and milestones based on goals of the research programme;
- ▶ Perform data analysis, and be responsible for qualitative and statistical analysis of research data and to communication of research findings;
- ▶ Regularly write technical reports on the outputs of research conducted, and maintain accurate and detailed records of all research conducted;
- ▶ Participate in preparation of manuscripts for publication in peer-reviewed journals;
- ▶ Liaise effectively with collaborators with a variety of internal and external stakeholders;
- ▶ Assist other researchers in conducting research in order to work as a team and further the School's research output;
- ▶ Work towards building an independent research project;
- ▶ Perform other duties as requested by the appointee's immediate supervisors.

2.2 TEACHING AND LEARNING

- ▶ Contribute to teaching, training, scientific mentoring and supervision of students;
- ▶ Supervise junior research staff in the appointee's area of expertise;
- ▶ Contribute to teaching and learning activities as requested by the School.

2.3 ENGAGEMENT

- ▶ Attend and contribute actively to research group meetings;
- ▶ Present experimental results at local, national and international forums;

- ▶ Attend and actively participate in School seminars, meetings and/or committee memberships.

2.4 SERVICE AND LEADERSHIP

- ▶ Assist in the preparation and submission of competitive grant applications relating to the appointee's research program;
- ▶ Perform other tasks as requested by the supervisor or the Head of the School;
- ▶ Undertake Occupational Health and Safety (OH&S) and Environmental Health and Safety (EH&S) responsibilities as outlined in Section 5

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 the University's People Strategy 2015-2020 and policies that address 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 the targets of Growing Esteem.

<http://diversity.eng.unimelb.edu.au>

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:

<http://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.