



POSITION DESCRIPTION

Mathematics and Statistics
Faculty of Science

Research Fellow in Computational Biostatistics

POSITION NO	0042986
CLASSIFICATION	Research Fellow, Level B
SALARY	\$98,775 - \$117,290 p.a.
SUPERANNUATION	Employer contribution of 17%
WORKING HOURS	Full-time
BASIS OF EMPLOYMENT	Fixed-term for three years
OTHER BENEFITS	http://about.unimelb.edu.au/careers/working/benefits
HOW TO APPLY	Online applications are preferred. Go to http://about.unimelb.edu.au/careers , select the relevant option ('Current Staff' or 'Prospective Staff'), then find the position by title or number.
CONTACT FOR ENQUIRIES ONLY	Dr Kim-Anh Lê Cao c/o Tel +61 3 8344 3730 c/o Email dbalding@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

Position Summary

The School for Mathematics and Statistics, and its partner the Centre for Systems Genomics (CSG), are seeking a skilled and experienced research fellow to work on our pioneering project in statistical integration of large biological data sets. Since 2009, our group has developed a large range of multivariate methodologies based on variants of Partial Least Squares and Projection to Latent Structures (PLS) to integrate the so-called 'omics data (transcriptomics, proteomics, metabolomics, etc.). Our methods are implemented in the mixOmics R toolkit which currently includes 17 multivariate methods and attracts an increasing number of users worldwide (21K download in 2016, www.mixOmics.org).

The Research Fellow in Computational Biostatistics will be responsible for leading novel and innovative statistical developments for the next phases of our project, which involve the analysis of microbiome data (16S rRNA sequencing and shotgun metagenomics), longitudinal analyses and genotype data analyses. The successful applicant will work in close interaction with statisticians, bioinformaticians and biologists in this initiative and will participate in hands-on workshops.

The position will include some teaching duties related to the project and the incumbent's areas of expertise.

The Research Fellow will be based at the Centre for Systems Genomics Genomics and will report to Dr Kim-Anh Lê Cao. The successful applicant will have the opportunity to contribute to and benefit from the development of the Centre, as well as to collaborate and interact with several other new appointees in the Statistics and Mathematical & Computational Biology research groups within the School.

1. Key Responsibilities

- ▶ Conduct internationally competitive research either as a member of a team or independently, and production of reports, conference and seminar papers and publications from that research
- ▶ Involvement in professional activities including, subject to availability of funds, attendance at conferences and seminars in the field of expertise.
- ▶ Contribute to teaching at undergraduate and postgraduate level.
- ▶ Contribute to training and mentoring of Postgraduate students within Research Fellow's area of research expertise.
- ▶ Administrative functions primarily connected with his/her area of research.
- ▶ Occupational Health and Safety (OH&S) and Environmental Health and Safety (EH&S) responsibilities as outlined in section 4.

2. Selection Criteria

2.1 ESSENTIAL

- ▶ A PhD or equivalent research higher degree in statistics, or interdisciplinary statistical research in genomics or a related area.
- ▶ Strong computer programming skills in R and experience in software development.

- ▶ Experience in multivariate statistical analysis, particularly for large data sets.
- ▶ Experience with genomics data analysis and an understanding of related data types, and sound knowledge of mammalian molecular biology and genomics
- ▶ An excellent research record relative to career stage including a strong record of publication in statistical applications in the life sciences, the ability to develop research links with other institutions nationally and/or internationally, and the ability to attract funding through grant applications.
- ▶ The ability to teach undergraduate classes in statistics or subjects in statistical genomics, biostatistics, bioinformatics or computational biology.
- ▶ Excellent interpersonal and both written and oral communication skills.
- ▶ Ability to supervise and mentor research students

2.2 DESIRABLE

- ▶ Excellent knowledge of other related statistical languages including Python.
- ▶ Experience in analysing and providing visualisation of next generation sequencing data.
- ▶ Experience in longitudinal analysis.
- ▶ Familiarity with high-throughput sequencing.

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 service for excellence and reach the targets of Growing Esteem.

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/topics/responsibilities/>

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

5. Other Information

5.1 CENTRE FOR SYSTEMS GENOMICS

The CSG (www.sysgenmelb.org) is an interdisciplinary research centre for the application of maths/stats/computing techniques to genomic profiling data to help understand genotype-to-phenotype process in humans and other organisms. The University of Melbourne provides a wide range of opportunities for exciting research collaboration. The Parkville precinct has the greatest concentration of biological and medical research in Australia, and among the greatest internationally. The recent establishment of the University of Melbourne Centre for Systems Genomics, directed by Professor David Balding, is a new initiative to strengthen the involvement of statisticians in the advances being made in genomics and computational biology.

5.2 SCHOOL OF MATHEMATICS AND STATISTICS

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 57 continuing teaching and research staff; 27 research only staff and consultants; 5 teaching specialists, 3 academic specialists; and 12 support staff. The School has over 100 casual and honorary staff. In 2016, there are 88 Research Higher Degree and 78 Coursework Master of Science students. Four members of the School staff and one Emeritus Professor are members of the Academy of Science.

Infrastructure support for research and basic information technology facilities are provided to all members of the School. 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 hosts two ARC Centres of Excellence, has several ARC Laureate, Future and 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 in the United States of States of America, most countries in Europe and the Asia-Pacific region.

The www address of the School of Mathematics and Statistics is
<http://www.ms.unimelb.edu.au>

5.3 FACULTY OF SCIENCE

<http://www.science.unimelb.edu.au>

Science at the University of Melbourne is the most highly ranked Faculty of Science in Australia.* Science is defined by its research excellence in the physical and life sciences and is at the forefront of research addressing major societal issues from climate change to disease. Our discoveries help build an understanding of the world around us.

We have over 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, which empowers our STEM students and graduates to understand and address complexities that impact real world issues and the challenges of tomorrow.

We aspire to engage the broader community with the impact that Science has on our everyday lives. Through the strength of our internships and research project offerings, our students are provided opportunities to engage with industry partners to solve real-world issues.

The Faculty of Science has over 50,000 alumni and is one of the largest faculties in the University comprising seven schools: BioSciences, Chemistry, Earth Sciences, Ecosystem and Forest Sciences, Geography, Mathematics and Statistics, and Physics.

The Faculty is custodian of the Bio21 Molecular Science and Biotechnology Institute, Office for Environmental Programs and home to numerous Centres.

Science manages more than \$290 million of income per annum, with a staff base in the order of 270 professional staff, and more than 580 academic staff.

We offer a range of undergraduate, honours, graduate and research degrees; enrolling over 8,600 undergraduate and 2,440 graduate students. The Faculty of Science is the custodial Faculty for the BSc (Bachelor of Science). The Faculty of Science is a leader in research, contributing approximately \$70 million in HERDC income per annum. The Faculty of Science is highly research focused, performing strongly in the ARC competitive grants schemes, often out-performing the national average. The Faculty of Science is currently growing its competitiveness and standing in the NHMRC space.

The Faculty of Science provides community services and industry partnerships based on a solid foundation of research in the pure and applied sciences. The Faculty has an endowment of approximately \$56 million. The annual income from the endowment supports more than 120 prizes, scholarships and research awards.

*Figures from the latest available data for 2015, including published international rankings data.

5.4 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 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>.

5.5 GROWING ESTEEM, THE MELBOURNE CURRICULUM AND RESEARCH AT MELBOURNE: ENSURING EXCELLENCE AND IMPACT TO 2025

Growing Esteem describes Melbourne's strategy to achieve its aspiration to be a public-spirited and internationally-engaged institution, highly regarded for making distinctive contributions to society in research and research training, learning and teaching, and engagement. <http://about.unimelb.edu.au/strategy-and-leadership>

The University is at the forefront of Australia's changing higher education system and offers a distinctive model of education known collectively as the Melbourne Curriculum. The new educational model, designed for an outstanding experience for all students, is based on six broad undergraduate programs followed by a graduate professional degree, research higher degree or entry directly into employment. The emphasis on academic breadth as well as disciplinary depth in the new degrees ensures that graduates will have the capacity to succeed in a world where knowledge boundaries are shifting and reforming to create new frontiers and challenges. In moving to the new model, the University is also aligning itself with the best of emerging European and Asian practice and well-established North American traditions.

The University's global aspirations seek to make significant contributions to major social, economic and environmental challenges. Accordingly, the University's research strategy *Research at Melbourne: Ensuring Excellence and Impact to 2025* aspires to a significant advancement in the excellence and impact of its research outputs.

<http://research.unimelb.edu.au/our-research/research-at-melbourne>

The strategy recognises that as a public-spirited, research-intensive institution of the future, the University must strive to make a tangible impact in Australia and the world, working across disciplinary and sectoral boundaries and building deeper and more substantive engagement with industry, collaborators and partners. While cultivating the fundamental enabling disciplines through investigator-driven research, the University has adopted three grand challenges aspiring to solve some of the most difficult problems facing our world in the next century. These Grand Challenges include:

- ▶ Understanding our place and purpose – The place and purpose grand challenge centres on understanding all aspects of our national identity, with a focus on Australia's 'place' in the Asia-Pacific region and the world, and on our 'purpose' or mission to improve all dimensions of the human condition through our research.
- ▶ Fostering health and wellbeing – The health and wellbeing grand challenge focuses on building the scale and breadth of our capabilities in population and global health; on

harnessing our contribution to the 'convergence revolution' of biomedical and health research, bringing together the life sciences, engineering and the physical sciences; and on addressing the physical, mental and social aspects of wellbeing by looking beyond the traditional boundaries of biomedicine.

- ▶ Supporting sustainability and resilience – The sustainability and resilience grand challenge addresses the critical issues of climate change, water and food security, sustainable energy and designing resilient cities and regions. In addition to the technical aspects, this grand challenge considers the physical and social functioning of cities, connecting physical phenomena with lessons from our past, and the implications of the technical solutions for economies, living patterns and behaviours.

Essential to tackling these challenges, an outstanding faculty, high performing students, wide collaboration including internationally and deep partnerships with external parties form central components of Research at Melbourne: Ensuring Excellence and Impact to 2025.

5.6 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 <http://www.unimelb.edu.au/governance>