POSITION DESCRIPTION

THE UNIVERSITY OF MELBOURNE

Department of Biomedical Engineering
School of Chemical and Biomedical Engineering
Melbourne School of Engineering

Research Fellow in Systems Biology

In line with the special measure H103/2014 provided for under section 12 of the Equal Opportunity Act 2010 (VIC), the Melbourne School of Engineering strongly encourages applications from suitably qualified female candidates.

POSITION NO	0043120
CLASSIFICATION	Research Fellow Grade 1 (Level A) or Research Fellow Grade 1 (Level B) Level of appointment will be commensurate with the qualifications and relevant experience of the successful appointee.
SALARY	$ 66,809* - $ 90,657 p.a. (Level A) (*PhD entry Level A.6 $84,458 p.a.) $95,434 - $113,323 p.a. (Level B)
SUPERANNUATION	Employer contribution of 17%
EMPLOYMENT TYPE	Full-time
BASIS OF EMPLOYMENT	Full-time (fixed-term) position available for 2 years Fixed term contract type: Research
OTHER BENEFITS	http://about.unimelb.edu.au/careers/working/benefits
CURRENT OCCUPANT	New
HOW TO APPLY	Online applications are preferred. Go to http://about.unimelb.edu.au/careers, under 'Job Search and Job Alerts', select the relevant option ('Current Staff' or 'Prospective Staff'), then find the position by title or number.
CONTACT FOR ENQUIRIES ONLY	Professor Edmund Crampin Email edmund.crampin@unimelb.edu.au *Please do not send your application to this contact*

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

Position Summary

The Research Fellow in Systems Biology will undertake research to develop an energy-based approach to modelling cellular processes. Most current systems biology models consider networks of biochemical reactions in terms of fluxes, or reaction rates, only. This provides a very incomplete model as it ignores the flow of energy through the system. Energy is fundamental to all biological systems and processes. The aim of the research project is to develop new approaches with which to represent energy flows, in addition to fluxes, in models of cellular biochemical processes. This is part of a larger project to develop comprehensive and predictive computational models of heart cells, called the 'heart cell physiome project'.

The Research Fellow in Systems Biology will join the Systems Biology Laboratory; a multi-investigator collaborative research group at the University of Melbourne, based at the School of Mathematics and Statistics and in the new Department of Biomedical Engineering at the Melbourne School of Engineering. The Systems Biology Laboratory is directed by Professor Edmund Crampin. More information about the Systems Biology Laboratory and its constituent research groups can be found at the website: https://systemsbiologylaboratory.com

The Melbourne School of Engineering 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.

The University plan seeks to increase the diversity of the workforce and the representation of women in areas they have been traditionally under-represented. Consistent with this, the School is seeking to increase the representation of women in the academic workforce across engineering disciplines. Under a Special Measure, under Section 12 (1) of the Equal Opportunity Act 2010 (Vic) the School is seeking to lift the representation of women from 20% in 2014 to at least 25% over the next 5 years, and strongly encourages applications from suitably qualified female candidates.

1. Selection Criteria

1.1 ESSENTIAL

- A PhD in applied mathematics, mathematical physics, bioengineering, systems biology, computational biology, or a related field;
- A record of quality research record appropriate for career stage, as evidenced by research publications in quality journals, conferences, grant funding, and/or patents;
- Ability to perform independent research and a commitment to interdisciplinary research;
- Capacity to communicate research concepts to technical and non-technical audiences;
- Excellent ability in analysing data, problem solving and maintaining accurate research records;
- A strong interest in biology, bioenergetics, and in the application of mathematical and computational modelling approaches to understand biological systems;
- Demonstrated ability in mathematical modelling and computational simulation;
- Demonstrated ability to work independently and collaboratively in a multi-disciplinary team to achieve project goals and meet agreed deadlines;

- Excellent written and verbal communication skills, demonstrated by presentation of research results at conferences, internal forums and through manuscript submissions;

1.2 ADDITIONAL ESSENTIAL CRITERIA FOR APPOINTMENT AT LEVEL B

At Research Fellow Level B, the successful applicant must demonstrate all of the above, and additionally must demonstrate:

- An outstanding background in either of the project areas;
- Demonstrated ability to develop new experimental protocols and experience in trouble shooting protocols;
- Demonstrated ability to work with limited supervision in a self-directed manner and as a member of a research team, and to interact in a courteous and effective manner with academic, administrative and support staff.

1.3 DESIRABLE

- Familiarity with one or more of the following areas: modelling and simulation of dynamical systems, thermodynamics including nonequilibrium thermodynamics, biochemical reaction theory, electrophysiology and metabolism, calcium signalling, heart cell physiology;
- Experience in supervision or co-supervision of postgraduate students and/or more junior research staff.

2. Key Responsibilities

2.1 RESEARCH – ADVANCEMENT OF THE DISCIPLINE

- Develop approaches to modelling cellular processes which represent energy flows as well as fluxes, using bond graphs; and apply these approaches to modelling of heart cells;
- Work as part of an international interdisciplinary team including modellers, physiologists, biophysicists and bioimaging experts to advance systems biology of heart cells;
- Contribute to preparation of research proposal submissions to external funding bodies;
- Contribute to the research development and day-to-day training and support of PhD students and research assistants associated with this and other research programs at the Systems Biology Laboratory;
- Independently plan and carry out research on the nominated research project, with the goal of timely completion of the milestones of the project;
- Perform data and microstructure analysis, and be responsible for qualitative and statistical analysis of research data and to communicate this information to the Chief Investigators and collaborators;
- Regularly write technical reports on the outputs of the experiments conducted, and maintain accurate and detailed records of all experiments conducted;
- Participate in preparation of manuscripts for publication in peer-reviewed journals;
- Liaise effectively with collaborators with a variety of internal and external stakeholders;
- Work towards building an independent research project;

2.2 TEACHING & LEARNING

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

2.3 ENGAGEMENT

- Attend and contribute actively to lab meetings;
- Present experimental results at local, national forums;
- Attend and actively participate in departmental seminars, meetings and/or committee memberships;

2.4 LEADERSHIP AND SERVICE

- Contribute to the administrative and academic activities of the Systems Biology Laboratory commensurate with the position, as requested by the Director;
- Active participation in the communication and dissemination of research;
- Identify sources of funding to support individual or collaborative projects, relating to teaching, research and engagement practice in the discipline;
- Effective supervision of research support staff;

2.5 OTHER

- Perform other tasks as requested by the supervisor or the Head of the Department;
- Undertake Occupational Health and Safety (OH&S) and Environmental Health and Safety (EH&S) responsibilities as outlined in Section 4.

In addition to the above, an appointment at Research Fellow Level B will be required to:

- Produce regular reports, conference and seminar papers and publications associated with the research project;
- Generate conference papers for presentation at national and international conferences;
- Develop independent research and apply for grants and undertake responsibility for the general oversight of grants associated with the research;
- Contribute to promotion and maintenance of academic excellence by supporting activities such as the Departmental seminar series;
- Initiate, manage and maintain significant inter-departmental and institutional collaborations.

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 deserve 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 DEPARTMENT OF BIOMEDICAL ENGINEERING

http://www.bme.unimelb.edu.au

The Department of Biomedical Engineering is a vibrant and rapidly growing department within Melbourne School of Engineering, working on some of the most challenging problems at the interface of engineering with life and medical sciences. The central aim of the Department is to apply interdisciplinary expertise and thinking to make new discoveries and provide innovative solutions that will improve healthcare and social wellbeing.

Our research covers a breadth of areas in biomaterials and tissue engineering; biomechanics and mechanobiology; bionics, biomedical imaging and neuroengineering; systems and synthetic biology. We have strong national and international linkages with industry, hospitals, research institutes, and universities.

We teach students within the Bioengineering Systems undergraduate majors in the Bachelor of Science and the Bachelor of Biomedicine, and offer two Masters programs: Master of Engineering (Biomedical) and Master of Engineering (Biomedical with Business).

5.2 MELBOURNE SCHOOL OF ENGINEERING

http://www.eng.unimelb.edu.au/

The Melbourne School of Engineering is one of Australia's leading Engineering Schools and aims to be the school of choice for the highest performing students and research staff in Australia and within the Time Higher Education Supplement top twenty Schools of Engineering internationally by 2020.

5.3 THE UNIVERSITY OF MELBOURNE

The University of Melbourne is a leading international university with a tradition of excellence in teaching and research. The University offers staff many benefits and prospective staff are encouraged to view the following web links:

www.unimelb.edu.au

www.growingesteem.unimelb.edu.au

www.unimelb.edu.au/careers

5.4 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/unisec/governance.html.