**THE UNIVERSITY OF MELBOURNE**

**Department of Anatomy and Physiology**
Faculty of Medicine, Dentistry and Health Sciences

# Postdoctoral Research Fellow (Image Processing and Analysis)

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| **POSITION NO** | 0054860 |
| **CLASSIFICATION** | Research Fellow Grade 1, Level A |
| **SALARY** | $75,289 - $102,163 p.a. |
| **SUPERANNUATION** | Employer contribution of 17% |
| **WORKING HOURS** | Full Time (1.00 FTE) |
| **BASIS OF EMPLOYMENT** | 1 year Fixed-Term (with potential for extension subject to external funding).<br><br>Fixed term contract type: Research, externally funded |
| **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** | Professor Janet Keast<br>Tel: +61 3 8344 5805<br>Email: janet.keast@unimelb.edu.au<br><br>*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

# *Position Summary*

An opportunity exists within the Department of Anatomy and Physiology, part of the Faculty of Medicine, Dentistry & Health Sciences, for a PhD qualified research scientist with specialised skills digital image processing and analysis. The Research Fellow will undertake research within a team that is funded by two programs of the US National Institutes of Health: the SPARC (Stimulating Peripheral Activity to Relieve Conditions) initiative and GUDMAP (GenitoUrinary Development Molecular Anatomy Project). These projects are led by Professor Janet Keast and Dr Peregrine Osborne. They aim to develop multi-scale anatomical and functional maps of the nervous system regulating lower urinary tract function and the vascular system of these organs.

The Research Fellow will work with 2D and 3D imaging datasets obtained from several types of optical microscopy (confocal, super resolution, light sheet) to process, segment and analyse the properties of neural and surrounding tissue structures. This will include development of new workflows for image analysis and validation of analysis protocols.

The Research Fellow will integrate into the research and scholarship activities of the laboratory and the larger collaborative team, contributing to the preparation of successful funding applications and research publications and assisting with the supervision and training of research higher degree and undergraduate research students. Attention to detail and accurate record keeping will be essential for this position.

The School of Biomedical Sciences and its Departments foster a values-based culture of innovation and creativity to enhance the research performance of the University and to achieve excellence in teaching and research outcomes.

We invest in developing the careers and wellbeing of our students and staff and expect all to live our Faculty Values of:

- Collaboration
- Compassion
- Respect
- Integrity
- Accountability

# 1. *Key Responsibilities*

## 1.1 RESEARCH AND RESEARCH TRAINING

- Design and conduct the required research effectively and efficiently in the time frame of the supporting funding and under limited supervision.
- Develop effective timelines and milestones based on goals of the research program
- Plan and carry out experiments focused on completion of research project aims to meet agreed timelines and milestones.
- Independently collect, manage and analyse quantitative data, prepare figures and reports for publications.
- Capacity and willingness to work independently or with other members of the team, as required.

- Publish and present research work in refereed journals, books, conference and seminars, reports etc.

- Maintain accurate experimental records and laboratory books

- Occupational Health and Safety (OH&S) responsibilities as outlined in section 4.

## 1.2   LEADERSHIP AND SERVICE

- Contribute to the research culture of the Department and host laboratory through attendance at meetings or seminars relevant to the team's activities and the Fellow's research expertise.

- Undertake an involvement in professional activities, including contributions to conferences and seminars in the field of expertise.

- Assist with the training and supervision of other research staff and students.

- Contribute to the preparation and management of research grants and identification of sources of funding to support relevant individual or collaborative projects.

## 1.3   ENGAGEMENT

- Active participation in some outreach activities relating to research and scholarship.

- Effective liaison with external networks to foster collaborative partnerships.

- Occupational Health and Safety (OH&S) responsibilities as outlined in section 4

# 2. Selection Criteria

## 2.1   ESSENTIAL

- A PhD level qualification in a basic research discipline with an emphasis on advanced microscopy or image analysis.

- A strong theoretical understanding of optical microscopy approaches to assess cell and tissue structure.

- Computational expertise specifically directed to image processing (development of new protocols, segmentation, quantitation of structural parameters, 3D reconstruction).

- A developing research profile, as evidenced by data collection for, writing and publication of original research in peer-reviewed international journals, conference and seminar presentations.

- Proven ability to plan, develop, prioritise and coordinate laboratory experiments.

- Demonstrated capacity to work effectively in an interdisciplinary environment, contribute to the work of the research team and to interact in an effective, collegial and courteous manner with academic, administrative and support staff and students.

- Demonstrated high-level interpersonal and written communication skills, demonstrated strong work ethics.

- Awareness of OHS responsibilities and willingness to attend OHS training as required.

## 2.2   DESIRABLE

- Experience in machine learning approaches for image analysis.

- Experience in performing optical microscopy (confocal, super resolution or light sheet).

## 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 Advancing Melbourne strategy 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 the targets of Advancing Melbourne.

## 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. Other Information

### 5.1 DEPARTMENT OF ANATOMY AND PHYSIOLOGY

Please visit the Department of Anatomy and Physiology website

The Department of Anatomy and Physiology has only recently come into fruition and is an amalgamation between the Departments of Anatomy and Physiology. Both Departments have long and illustrious history and have come together to produce a Department with a remarkable breadth and depth in research expertise that underpin our key research themes of neuroscience, metabolism and diabetes, stem cell and developmental biology and muscle biology. The goal of the combined department is to remain at the forefront of scientific research aimed at understanding the structure and function of the human body in health and disease, employing novel and imaginative research methods.

Our Department also hosts the Phenomics Australia Histopathology and Organ Pathology Service, providing detailed histological phenotyping and digital scanning of data from

mutant mice. Our researchers are in the Triradiate Medical Building and the Melbourne Brain Centre, which has excellent research facilities, including confocal and live cell imaging microscopes, laser capture dissection, tissue culture, histology, electrophysiology and molecular biology. The synergy between these activities provides a vibrant environment for undergraduate and postgraduate training, and a friendly and supportive intellectual community to encourage development of early career researchers.

## 5.2 SCHOOL OF BIOMEDICAL SCIENCES

biomedicalsciences.unimelb.edu.au

The School of Biomedical Sciences is part of the Faculty of Medicine, Dentistry & Health Sciences. It was established on 1 January 2015 and comprises the Departments of Anatomy and Physiology, Biochemistry and Pharmacology, and Microbiology and Immunology.

## 5.3 FACULTY OF MEDICINE, DENTISTRY AND HEALTH SCIENCES

www.mdhs.unimelb.edu.au

The Faculty of Medicine, Dentistry & Health Sciences has an enviable research record and is the University of Melbourne's largest faculty in terms of management of financial resources, employment of academic and professional staff, teaching of undergraduate and postgraduate (including research higher degree) students and the conduct of basic and applied research. The Faculty's annual revenue is $628m with approximately 55% of this income related to research activities.

The Faculty has a student teaching load in excess of 8,500 equivalent full-time students including more than 1,300 research higher degree students. The Faculty has approximately 2,195 staff comprising 642 professional staff and 1,553 research and teaching staff.

The Faculty has appointed Australia's first Associate Dean (Indigenous Development) to lead the development and implementation of the Faculty's Reconciliation Action Plan (RAP), which will be aligned with the broader University – wide plan. To enable the Faculty to improve its Indigenous expertise knowledge base, the Faculty's RAP will address Indigenous employment, Indigenous student recruitment and retention, Indigenous cultural recognition and building partnerships with the Indigenous community as key areas of development.

## 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 ADVANCING MELBOURNE

The University's strategic direction is grounded in its purpose. While its expression may change, our purpose is enduring: to benefit society through the transformative impact of education and research. Together, the vision and purpose inform the focus and scale of our aspirations for the coming decade.

Advancing Melbourne reflects the University's commitment to its people, its place, and its partners. Our aspiration for 2030 is to be known as a world-leading and globally connected Australian university, with our students at the heart of everything we do.

- We will offer students a distinctive and outstanding education and experience, preparing them for success as leaders, change agents and global citizens.

- We will be recognised locally and globally for our leadership on matters of national and global importance, through outstanding research and scholarship and a commitment to collaboration.

- We will be empowered by our sense of place and connections with communities. We will take opportunities to advance both the University and the City of Melbourne in close collaboration and synergy.

- We will deliver this through building a brilliant, diverse and vibrant University community, with strong connections to those we serve.

The means for achieving these goals include the development of the University of Melbourne's academic and professional staff and the capabilities needed to support a modern, world-class university. Those means require a commitment to ongoing financial sustainability and an ambitious infrastructure program which will reshape the campus and our contribution to the communities we engage with. This strategy, and the priorities proposed, is centred around five intersecting themes; place, community, education, discovery and global.

## 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