

## Position Description – Post Doctoral Research Fellow in Remote Sensing: Bushfires

### Position Details

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<b>Position Title:</b>	Post-Doctoral Research Fellow in Remote Sensing: Bushfires
<b>Position Number:</b>	NEW
<b>Portfolio:</b>	Science Engineering and Health
<b>School/Group:</b>	Mathematical and Geospatial Sciences
<b>Campus Location:</b>	Based at the City campus, but may be required to work and/or be based at other campuses of the University.
<b>Classification:</b>	Academic B1 Salary Schedule: <a href="http://www.rmit.edu.au/browse;ID=ewhltt73t01">http://www.rmit.edu.au/browse;ID=ewhltt73t01</a>
<b>Employment Type:</b>	2 Years Fixed Term / Research <i>Note: See <a href="#">Reasons for fixed term appointments guideline</a> for explanation of fixed term categories</i>
<b>Time Fraction:</b>	1.0

### RMIT University

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RMIT is a global university of technology and design, focused on creating solutions that transform the future for the benefit of people and their environments. We are global in attitude, action and presence; urban in orientation and creativity; and connected through active partnerships with professions, industries and organisations.

RMIT University enjoys an international reputation for excellence in professional and practical educational programs and high quality outcome-oriented research.

One of Australia's original educational institutions founded in 1887, RMIT is now the nation's largest tertiary institution. The University offers an extensive range of postgraduate, undergraduate and vocational programs

RMIT has three Melbourne campuses – in the central business district and in Brunswick and Bundoora in the city's northern suburbs - campuses in Hanoi and Ho Chi Minh City in Vietnam and a site in Barcelona, Spain. With significant partnerships in Hong Kong, China, Indonesia, Malaysia and Singapore, RMIT has a strong educational presence in the Asia-Pacific region. The University's total student population of 82,000 includes 30,000 international students (onshore and offshore).

RMIT is a leader in technology, design, global business, communication, global communities, health solutions and urban sustainable futures. It is ranked in the top 150 universities in the world for engineering, computer science and information systems, economics, communication and media studies, accounting and finance and education in the 2013 QS World University Rankings and 10<sup>th</sup> in Australia.

[www.rmit.edu.au](http://www.rmit.edu.au)

## **College of Science, Engineering and Health**

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The College comprises 10 Schools delivering a broad range of programs in Science, Engineering and Health at Apprenticeship, Certificate, Bachelor, Masters and PhD levels. There is a vibrant research community attracting funding from a range of government and industry sources. The College employs over 1,000 staff providing on and offshore programs to approximately 20,000 students.

Details relating to the School/College Office may be found on at: [www.rmit.edu.au/seh](http://www.rmit.edu.au/seh)

The School of Mathematical & Geospatial Sciences draws together disciplines involving the collection of data with the analysis of data and the understanding and optimisation of systems through modelling and visualisation.

The school offers undergraduate science degrees in Geospatial Science, Mathematics, Statistics, and Surveying, and coursework masters programs in Analytics, Operations Research, Information Security, and Geospatial Science. The school is also a key provider of enabling courses to other Schools of the RMIT University

The School has about 50 academic staff and over 70 postgraduate research students. RMIT is a founding member of the Australasian Mathematical Sciences Institute.

<http://www.rmit.edu.au/math-geo>

### **Position Summary**

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This position is a key appointment to the newly awarded Bushfire and Natural Hazard CRC Project A4: Disaster landscape attribution: active fire surveillance and hazard mapping, data scaling and validation.

Bushfire (wildfire) is an important ecological process, yet sometimes devastating component of the Australian landscape. Understanding the size, severity and configuration of a wildfire complex, in a timely manner, is critical for fire mitigation, response and recovery activities. This project will systematically address the provision of timely and high quality information from multi-scale remote sensing systems. Specifically, the project seeks to develop enhanced metrics on active fire extent, intensity and configuration as well as key bushfire landscape attributes. The project aims to bridge significant information and knowledge gaps that currently prevent optimal use of earth observing technology. These include issues of accuracy and reliability in active fire surveillance, quantitative estimates of post-fire severity, lack of product validation, and out-of-date approaches to collecting information on landscape condition and hazard.

We are seeking to appoint a postdoctoral researcher to join our team in developing and applying new mathematical models, algorithms, and computational processes and procedures for integrating and analysing multi-scale remotely sensed imagery and ground data. The outputs of the research will include tools and procedures with which to:

- Implement and assess the utility of earth observation algorithms for the enhanced surveillance of the extent, intensity and configuration of fire in an Australian context.
- Assess landscape condition and biomass status (both pre- & post-fire) to enable a more accurate parameterisation of fire behaviour models.

Within the project framework, the successful candidate will work with Professor Jones and Dr. Karin Reinke (RMIT), and research leaders from across industry and government including the State Aircraft Unit (VIC), Geoscience Australia, Queensland Fire Emergency Services (QLD), the Bureau of Meteorology, the Department of Environment and Primary Industry (VIC) and the Country Fire Authority (VIC). We are particularly seeking candidates with experience in linking in situ observations to long-term spectral datasets, and the related scaling issues. Potential candidates should possess: an earned doctorate in remote sensing, quantitative wildfire research and / or spatial analysis (with expertise the area of image analysis / spatial – ecological modelling), be an experienced / expert user of ENVI-IDL / MATLAB / R and Python, or similar, and be highly motivated and enjoy working in an applied problem oriented research environment.

### **Reporting Line**

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Reports to: Professor in Remote Sensing, RMIT.

Direct reports: None.

## Organisational Accountabilities

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RMIT University is committed to the health, safety and wellbeing of its staff. RMIT and its staff must comply with a range of statutory requirements, including equal opportunity, occupational health and safety, privacy and trade practice. RMIT also expects staff to comply with its policy and procedures, which relate to statutory requirements and our ways of working.

Appointees are accountable for completing training on these matters and ensuring their knowledge, and the knowledge of their staff, is up to date.

## Key Accountabilities

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- Conduct empirical and case study based research;
- Assist with refining and developing research projects and methodologies;
- Liaise with the members of the RMIT remote sensing research group and other stakeholders within Australia;
- Support the publication of project research through peer-reviewed journals and conference presentations;
- Support the preparation of grant proposals;
- Liaise with BNHCRC partners to facilitate R & D programs
- Support and aide in the supervision of the research programs of research students associated with BNHCRC project
- Support the coordination and reporting of BNHCRC project activities based at RMIT University to the Program Director and BNHCRC project Management Committee.

## Key Selection Criteria

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### *Essential*

1. An earned doctorate in spatial analysis or remote sensing – or equivalent qualifications or experience. While the project covers a range of disciplines we are seeking applicants with expertise in the area of image analysis, spatial modelling and environmental or bushfire science.
2. Experience in using thermal sensing technologies and/or resultant data (or experience in using laser and/or hyperspectral technologies and/or resultant data);
3. Capacity to contribute to the design of data acquisition campaigns and supporting field work;
4. An interest in, and capacity for, working in an applied problem oriented research environment;
5. Ability and willingness to travel between institutes of various research partners and end-users within Australia;
6. A capacity to work well in a collaborative environment, including a capacity for initiating ideas and communication to other team members;
7. Strong interpersonal skills;
8. A proven capacity for quality publishing and effective oral communication.

### *Desirable*

9. Experienced / expert user of ENVI-IDL / MATHLAB / ARCGIS / R and/or Python or equivalent;
10. A knowledge of programming or scripting languages with reference to data processing and analysis of image / spatial datasets, ideally for wildfire-related research and application;
11. Experience in multi-scale and multi-source data fusion;
12. Understanding of data validation and accuracy assessment;
13. Capacity for working independently;
14. Capacity to organise events such as seminars and workshops.

## Qualifications

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A PhD qualification in remote sensing / spatial analysis of vegetation or bushfire related environmental processes, or equivalent qualification or experience.

<b>Endorsed:</b>	Signature: Name: Title: Date:	<b>Approved:</b>	Signature: Name: Title: Date:
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