Research Fellow in Smart Grids

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 0046146

CLASSIFICATION Research Fellow (Level A)

SALARY $69,148* - $93,830 p.a. (*PhD Entry Level A.6 $87,415 p.a)

SUPERANNUATION Employer contribution of 9.5%

WORKING HOURS Full-time (1.0 FTE)

BASIS OF EMPLOYMENT Fixed-term position available for 2 years

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.

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 Nando Ochoa Email luis.ochoa@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
**Position Summary**

Located in the Department of Electrical and Electronic Engineering, the appointee will carry out world-class research in Smart Grids – critical for the uptake of renewables and the transition to a low-carbon economy, and a key area for Melbourne School of Engineering. More specifically, the appointee will investigate different techniques that can be applied in the short term by Distribution Network Service Providers (DNSPs), who manage the electricity distribution networks, to assess and increase the ability of distribution circuits to host solar photovoltaic (PV) systems. The development of advanced techniques will also be investigated; mainly as part of the transition towards Distribution System Operators (DSOs) – a futuristic vision already discussed in Europe, USA, and Australia, in which participants (consumers, generators, aggregators) are also managed to guarantee the adequate, cost-effective operation of a renewable-rich electricity system.

The appointee will focus on research and development aspects of future Smart Distribution Networks, including:

- detailed time-series modelling of the interactions of low-carbon technologies (solar PV systems, energy storage systems, etc.) with unbalanced distribution networks across low and medium voltage levels using the software package OpenDSS;
- modelling solutions (heuristic and optimal control strategies that can be decentralised, hierarchical, centralised) to mitigate network issues whilst considering customer aspects;
- implementing and assessing the operational performance and benefits of the potential solutions;
- implementing simplified techniques to help DNSPs quickly assess, from a planning perspective, the benefits from the potential solutions;
- investigating the different interactions and requirements from potential solutions and future architectures involving Distribution System Operators (DSOs).

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 an area related to modelling and analysis of electric distribution networks.
- A track record of high quality research as evidenced by publications in top journals and conferences.
- Knowledge in the modelling and analysis of future medium and low voltage distribution networks considering the use of new control strategies and/or technologies in the context of Smart Grids.
- Experience using OpenDSS with Python or Matlab.
Experience in realistic modelling of three-phase distribution networks and distributed energy resources.

- 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 interpersonal skills, including an ability to effectively liaise and collaborate with academic and industry partners.

1.2 **DESIRABLE**

- Experience in supervision of students and/or research assistants;
- Experience in the submission of grant applications.

2. **Key Responsibilities**

2.1 **RESEARCH**

- Planning and conducting fundamental and application oriented research aligned with the ‘Position Summary’ above.
- Develop effective timelines and milestones based on goals of the research programme.
- Regularly write technical reports on the outputs of the experiments conducted, and maintain accurate and detailed records of all experiments conducted.
- Write high quality research papers for publication in peer-reviewed journals.
- Liaise effectively with collaborators with a variety of internal and external industry partners.
- Assist other researchers in carrying out experiments in order to work as a team and further the department’s research output.
- Contribute to the development of the Department’s and the School’s strong research program in Smart Grids and Power Systems.
- Work towards building an independent research project.

2.2 **TEACHING AND LEARNING**

- Support, to a reasonable extent, teaching of Power System-related subjects and the supervision of undergraduate and postgraduate research students.

2.3 **ENGAGEMENT**

- Effective liaison with external networks to foster collaborative partnerships.
- Present results at local and national forums.
- Attend and actively participate in project meetings and departmental seminars.
2.4 SERVICE AND LEADERSHIP

- Assist in and contributing to the administrative aspects of the project.
- Identify sources of funding to support individual or collaborative projects, relating to teaching, research and engagement practice in the discipline.
- 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.

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.

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 ELECTRICAL AND ELECTRONIC ENGINEERING

The Department of Electrical and Electronic Engineering, within the School of Electrical, Mechanical and Infrastructure Engineering, hosts a vibrant, internationally recognised research program, which receives exceptional support from industry and government. The Department has strengths in four areas: Communication and Networks, Control and Signal Processing, Photonic and Electronic Systems, and Power and Energy Systems. These areas represent the core ingredients of our activities across a number of research centres and laboratories.

The Department offers both PhD and Masters level research degrees, as well as the following postgraduate coursework degrees:
Professional Master of Engineering (Electrical)
www.eng.unimelb.edu.au/study/graduate/master-eng-electrical.html

Master in Telecommunications Engineering (MTE)
www.eng.unimelb.edu.au/study/graduate/master-telecomm-eng.html

The department also contributes to the Electrical Systems major in the Bachelor of Science:
www.eng.unimelb.edu.au/study/undergraduate/electrical.html

Further information about the Department can be found under www.ee.unimelb.edu.au

SCHOOL OF ELECTRICAL, MECHANICAL AND INFRASTRUCTURE ENGINEERING

The School of Electrical, Mechanical and Infrastructure Engineering undertakes teaching and research across a range of disciplines that are internationally recognised for their contribution to fundamental research. It has a number of well-established industry linkages and international partnerships. It is building a vibrant profile of interdisciplinary research, working with industry with an aim to contribute to society. It offers a comprehensive range of accredited Masters of Engineering and Master of Information Technology programs taught through the Electrical, Mechanical and Infrastructure departments as well as professional Masters programs. It has a substantial cohort of research higher degree students.

The School’s aim is to attract and retain outstanding staff. The School is highly supportive of increasing the number of female staff.

5.2 MELBOURNE SCHOOL OF ENGINEERING
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 www.unimelb.edu.au/unisec/governance.html.