Department of Economics  
Faculty of Business and Economics

Research Fellow in Bayesian Numerical Sensitivity Analysis

POSITION NO          0045384
CLASSIFICATION        Level B
SALARY                $98,775 - $117,290 p.a.
SUPERANNUATION        Employer contribution of 9.5%
WORKING HOURS         Full Time
BASIS OF EMPLOYMENT   Fixed term position available for 1 year
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  
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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

The Department of Economics is seeking to appoint a Research Fellow with focus to develop an R-package to implement Sensitivity Analysis for Bayesian Inference via Markov Chain Monte Carlo methods using new numerical methods based on Automatic Differentiation. We expect the Research Fellow to take the lead in the development of the R-package based on the methods that have been developed by the investigators.

1. Key Responsibilities

For Minimum Standards for Academic Staff Level B view http://www.policy.unimelb.edu.au/schedules/MPF1157-ScheduleB.pdf

- Conduct internationally competitive research, resulting in publications in high impact journals and presentations at conferences and seminars
- Conducting experimental research with individuals and groups
- Conducting statistical analysis of research results
- Develop effective timelines and milestones based on goals of the research programme
- Contribute to the preparation, or where appropriate individual preparation of research proposal submissions to external funding bodies
- Manage communication activities among the stakeholders involved in the research projects, including face-to-face meetings, teleconferences, emails, Skype, online blogs, contributions to reports etc.
- Undertake administrative functions and obligations primarily connected with the incumbent's 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 near completion) in Statistics or Econometrics
- R-coding experience, including development of R-packages
- Demonstrated ability to perform independent research and a commitment to interdisciplinary research leading to strong academic publications
- A track record of quality research in the discipline as evidenced by research publications in leading conferences and journals commensurate with opportunity
- Sophisticated and up to date knowledge of the research literature of structured analytic techniques (such as Bayesian MCMC methods), and experience using such techniques to solve real world, practical problems
- Excellent ability to work co-operatively in a multi-disciplinary team environment and liaise with associates from both industry and academia
- Demonstrated experience in using initiative, working with minimal supervision and ability to prioritise tasks to achieve project objectives within timelines
2.2 DESIRABLE

- Knowledge of Automatic Differentiation
- Experience in Bayesian estimation via MCMC methods

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 strive 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/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 ORGANISATION UNIT

The Department of Economics is a leading department in Australia with a strong postgraduate program and an outstanding group of economists and econometricians, all of whom have high research profiles. The Department is one of the largest departments in the Faculty of Business and Economics. The Department is research active and performs teaching and research in the areas of economics, econometrics and actuarial studies. The Department provides high quality teaching at undergraduate and postgraduate levels and
undertakes high quality research. The Department actively contributes to the community and maintains strong ties to business and government sectors. Located within the Department are:

- Centre for Actuarial Studies
- Trade and Development Research Unit
- Economic Theory Research Unit
- Econometrics Research Unit
- Macroeconomics Research Unit
- Households Research Unit
- Centre for Market Design

Information on the Department can be obtained from

http://fbe.unimelb.edu.au/economics/

5.2 BUDGET DIVISION

The Faculty of Business and Economics at the University of Melbourne has been preparing students for exciting and challenging careers in industry since 1924. We have developed an outstanding reputation, locally and internationally, for the quality of our teaching and research. The Faculty has an active board of business leaders, government representatives and community leaders who contribute to the implementation of our vision.

Organisational Structure

The Faculty is home to Melbourne Business School (MBS) and to six teaching and research departments:

Accounting
Business Administration
Economics
Finance
Management and Marketing
Melbourne Institute of Applied Economic and Social Research

The Faculty has the following student and academic support centres:

Academic Support Office
Student Employability and Enrichment
Research Development Unit
The Williams Centre for Learning Advancement
The Faculty is supported by the following Professional Services Units:

Finance
Human Resources (including OHS)
Marketing and Communications
Service Level and Facilities Management
Quality Office

The faculty also hosts two University-wide initiatives:

The Melbourne School of Professional and Continuing Education (MSPACE) which provides support to all Academic Divisions for their existing professional, continuing and executive education programs, and operates with a specific whole-of-institution mandate to significantly expand the University’s professional, continuing and executive education offerings.

The Melbourne Entrepreneurial Centre (MEC) which brings together a number of programs to focus a range of activities aimed at developing an entrepreneurial culture at the University of Melbourne.

Our Programs

There are about 9,500 students enrolled in undergraduate and graduate degrees within the Faculty.

The Bachelor of Commerce is one of the most sought-after business courses in Australia. From 1 May 2013 all graduate programs in business and economics are offered through Melbourne Business School. Melbourne Business School offers a full suite of professional masters programs for those with little work experience right through to the MBA suite. It is also the home of leading research masters degrees and the PhD.

Our Graduates

Since the Faculty was established it has produced over 53,000 graduates. Many of our alumni now occupy senior positions in business, government and academia, in Australia and around the world.

Further information about the Faculty is available at www.fbe.unimelb.edu.au.
5.4 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](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](http://research.unimelb.edu.au/our-research/research-at-melbourne) aspires to a significant advancement in the excellence and impact of its research outputs.

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.
5.5 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