UNIVERSITY OF LEEDS

Faculty of Environment
Institute for Transport Studies

Research Fellow in Choice Modelling: Emphasis on Long Term Choices

Three year fixed term contract, available from 1 December 2014

https://jobs.leeds.ac.uk/vacancy.aspx?ref=ENVTR0038

You will be a committed, highly motivated and innovative individual with strong choice modelling skills and a proven ability to conduct state-of-the-art research.

This is one of three post-doctoral positions under this project, hosted in the Institute for Transport Studies (ITS), but with cross-university collaborations through the Choice Modelling Centre (CMC). You may also wish to consider the post of Research Fellow in Choice Modelling: Emphasis on Behavioural Realism, job ref: ENVTR0037.

The specific area of research for this post is concerned with the modelling of long term choices. This is a multi-faceted research task, aiming to bridge a gap in current research which pays disproportionate attention to short term decisions. The work will look at the timing of long term choices, decision rules for long term choices, modelling very rare-event decisions, and creating links with short term and medium term choices. You will be expected to take academic ownership of large parts of the programme and make a lasting contribution to the field. You will also contribute to the empirical component of the project, which looks at modelling energy related decision making in a broader context, incorporating once again the relationship between short term and long term decisions, as well as interactions with other agents.

You will be expected to make a full contribution to the vibrant cross-university Choice Modelling Centre and will also be a member of the Economics and Discrete Choice research group within ITS. Your qualifications will include a PhD (or you will be very close to obtaining a PhD) in choice modelling and you will have a strong track record of developing state-of-the-art modelling techniques and applying them to different decision contexts. Cross-disciplinary experience is welcome.

University Grade 7 (£31,342- £37,394 p.a.)

Informal enquiries may be made to Professor Stephane Hess, tel +44 (0)113 343 6611, email s.hess@its.leeds.ac.uk

Interviews are expected to be held on 4 November 2014

Closing Date: 5 October 2014

Ref: ENVTR0038

Click here for further information about working at the University of Leeds
www.leeds.ac.uk/info/20025/university_jobs

Job Description

Responsible to: Head of School
Reports to: Professor Stephane Hess

Summary of post

This role provides an exciting opportunity to contribute to a major cross-disciplinary research programme at the heart of the new Choice Modelling Centre (CMC) set up within the University of Leeds. The five year DECISIONS project, funded by the European Research Council (ERC) seeks to make a step change in choice modelling. The project aims to develop a new framework which realigns modelled behaviour with real world behaviour, incorporating links between long term decisions and day to day choices, and accounting for the growing importance of virtual social networks and the role of joint decisions.

Main duties and responsibilities

- Contribute to the DECISIONS project by working on the tasks outlined below
- Take intellectual ownership of subcomponents of the project and help shape the direction of the research
- Make a contribution to the Choice Modelling Centre through interactions with other choice modellers working in the University of Leeds
- Lead and contribute to research papers for publication
- Transform and apply knowledge acquired from the projects by presenting research papers at conferences
- Develop collaborations with colleagues in other Institutes, Schools and Faculties at the University of Leeds and develop research links with external organisations
- Use initiative and creativity to identify areas for further research
- Contribute to the development of follow-on research funding applications where appropriate
- Plan and manage your own research activity within the strategy identified for the project teams as a whole
- Develop and support a small number of undergraduate and master's student dissertations in areas which support the overall objectives of the post
- Balance the competing pressures of research and administrative demands and deadlines
- Ensure satisfactory compliance in your work with respect to health and safety, ethical requirements etc
- To undertake any other duties which may be commensurate within the role and grade as requested by the project leader

Your work will focus on a number of subtasks of the DECISIONS project. These are likely to evolve over time and there is substantial scope for you helping to shape the direction of the work.

The specific tasks to which you will contribute are:

Timing of long term choices: Most short term decisions are sufficiently frequent so as not to necessitate a separate model to determine when the next choice occurs. This is very different for long term decisions, where car purchases occur only every few years, while for example decisions on residential location will only occur a few times at most during a person's lifetime. Others still, such as decisions relating to education and/or career may only happen once. With decisions relating to lifestyle choices, the timing may be even more difficult to pin down and no one discrete event may be apparent. This task will investigate appropriate approaches for modelling the timing of other long term decisions, looking both at the hazard models used successfully for modelling the timing of vehicle transactions or residential location choices and other mathematical modelling approaches. It will also look at the relationship between timing for different types of long term decisions.

Decision rules for long term choices: While the timing of long term decisions as well as the choice set formation of for example residential location models have received a steady stream of interest, the structures for modelling the actual choices have often been identical to those developed for short term decisions. However, there are significant differences between short term and long term decisions, e.g. in terms of financial implications and reduced ability to change an unsatisfactory decision. Drawing on existing data for vehicle and residential choice, this task will investigate the potential benefit of alternative theories of behaviour, including the use of non-compensatory decision rules. Long term choices are likely to involve a substantial level of forward thinking, and this needs to be taken into account in modelling such choices, for example drawing on work on temporal discounting.

Modelling rare-event long term decisions: The main focus in modelling long term choices has been on a handful of decision contexts, primarily car purchase behaviour and residential location choices. Detailed modelling of decisions relating to migration and a host of lifestyle choices has received little or no attention from the choice modelling community, despite the obvious importance of these choices. When modelling such rarer long term decisions, there is potentially even more scope for applying alternative decision rules. A major issue in this context is clearly that of data on such choices, and a key task will be the exploration of data sources, covering for example repeated household surveys.

Interactions between choices: The interaction between individual choices made by the same decision maker is a key component of human decisions. This task looks first at interactions between separate short term decisions before looking at the links between long term decisions and short term decisions. The work will look into accommodating preference dynamics and will explore the possibility of including information from related decision environments into discrete choice models. It will cover both the impact of past choices as well as the possibility that decision makers anticipate future choices when choosing. This anticipation component relates directly to the link between long term and short term choices.

Empirical case study: The DECISIONS project includes a major case study looking at energy consumption. While this has received repeated attention from the choice modelling community, looking for example at the choice of providers, demand for alternative fuel vehicles, as well as continuous consumption, e.g. vehicle miles travelled, this task seeks to model overall energy consumption as a result of travel decisions as well as heating and appliance choices. Furthermore, it looks at consumption over a prolonged time horizon, thus covering day to day usage as well as more infrequent demand. Finally, the other key contribution will be to look at consumption within the larger framework of decision making developed in this project, studying the key impact of long term decisions on short term consumption and the role that attitudes and social networks play. A major data collection effort will be undertaken, and you will contribute to both the survey work and the modelling work.

Career Expectations

The University of Leeds is committed to developing its staff. All staff participate in the Staff Review and Development scheme and we continue to work with individuals, supporting them to maximise their potential.

Progression to a higher grade is dependent on an individual taking on an increased level of responsibility. Vacancies that arise within the area or across the wider University are advertised on the HR website - http://jobs.leeds.ac.uk - to allow staff to apply for wider career development opportunities.

University Values

All staff are expected to operate in line with the University's values and standards, which work as an integral part of our strategy and set out the principles of how we work together. More information about the University's strategy and values is available at http://www.leeds.ac.uk/comms/strategy/.

The Institute for Transport Studies is a green impact award holder, and expects all staff to go about their duties in a resource efficient way, minimising impacts to the environment wherever possible.

Person Specification

Essential

- A PhD (or be very close to obtaining a PhD) in choice modelling
- Experience in developing advanced choice models and applying them to real world decision contexts
- A willingness to learn about unfamiliar sectors and literatures
- A developing track record of peer-reviewed publications in international journals
- Evidence of innovation in research
- Ability to work independently and flexibly
- Ability to work accurately and carefully
- Ability to meet deadlines and maintain a professional approach to all aspects of the role
- Excellent communication skills including examples of reaching different audiences
- Ability to work as part of a team as well as autonomously

Desirable

- Cross-disciplinary experience, applying choice models across different fields
- Computer programming skills in the context of model estimation
- Survey design experience
- Ideas for ways in which the project could stimulate engagement with policy makers and/or the public

Additional Information

Details of the terms and conditions of employment for all staff at the University, including information on pensions and benefits, are available on the Human Resources web pages accessible at http://hr.leeds.ac.uk/

The Partnership

To be aware of and work in line with The Partnership working with students as members of a learning community to provide world class education and an excellent student experience. More information about the Partnership is available at http://partnership.leeds.ac.uk

Disclosure and Barring Service checks

A Disclosure and Barring Service (DBS) Check is not required for this position. However, applicants who have unspent convictions must indicate this in the 'other personal details' section of the application form and send details to the Recruitment Officer at disclosure@leeds.ac.uk.

Disabled Applicants

The post is located in the Institute for Transport Studies. Disabled applicants wishing to review access to the building are invited to contact the department direct. Additional information may be sought from the Recruitment Officer, email disclosure@leeds.ac.uk or tel + 44 (0)113 343 1723.

Disabled applicants are not obliged to inform employers of their disability but will still be covered by the Equality Act once their disability becomes known.

Further information for applicants with disabilities, impairments or health conditions is available in the applicant guidance.

Further Information

Choice Modelling Centre (CMC)

The Choice Modelling Centre (CMC) is a large cross-disciplinary grouping of leading academics working in choice modelling. CMC aims to bring together expertise from all key disciplines and create an environment of collaboration by breaking down traditional barriers. It aims to be a one stop shop for conducting state-of-the-art theoretical research, making a step change in applied work, leading the way in postgraduate study, and providing world class teaching and continuing professional development.

Our research covers new methodological developments, theoretical insights and practical solutions to real world problems. We work both in modelling choices and the development of surveys and techniques for capturing data on choices. We are active across numerous thematic areas, including but not limited to transport, health, energy and business/marketing.

Further information can be found on www.cmc.leeds.ac.uk

Institute for Transport Studies

The Institute's primary purpose is to advance the understanding of transport activity, operations and use, and to develop skills and best practice among transport professionals and decision-makers. The Institute is the UK's largest single academic group providing transport courses and training. In a typical year there are around 500 students taking undergraduate modules, 80 students on Masters programmes, up to 40 registered PhD students, and dozens of delegates participating in short courses. Through this, the Institute makes a significant contribution to resolving the skills shortage faced by the transport sector, and to improving both the quantity and quality of transport professionals internationally.

ITS is a leading international centre for transport research. It is particularly notable for the breadth and depth of research, the international quality of which has been verified by Research Assessment Exercise (RAE) stretching back over a period of 20 years. The research is sponsored by a variety of organisations, including the UK Department for Transport, the European Commission, and the Engineering and Physical Sciences Research Council.

ITS has approximately 50 academic/research staff and about a dozen support staff. The Institute prides itself on its inter- and multi-disciplinary nature; the staff come from a wide variety of background disciplines, including economics, engineering, geography, mathematics, computing, psychology and social science. ITS staff have provided expert advice to international organisations such as the World Bank, the European Commission and the International Transport Forum, to national governments around the world and to UK entities such as the House of Commons Transport Select Committee. Staff also serve as editors and/or members of the editorial boards of many leading transport journals and play a prominent role in the organisation of international transport conferences.