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| Last updated: | October 2016 |

**JOB DESCRIPTION**

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| Post title: | **Research Fellow** | | |
| Academic Unit/Service: | Civil, Maritime, Environmental Engineering and Science Unit /  Transportation Research Group | | |
| Faculty: | Faculty of Engineering and the Environment | | |
| Career Pathway: | Education, Research and Enterprise (ERE) | Level: | 4 |
| \*ERE category: | Research pathway | | |
| Posts responsible to: | Dr Bani Anvari | | |
| Posts responsible for: |  | | |
| Post base: | Office-based/Non Office-based (see job hazard analysis) | | |

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| Job purpose |
| To undertake research in accordance with the specified research project under the supervision of the award holder. To undertake leadership, management and engagement activities.  Responsible for developing traffic simulation software with the capability of modelling future connected and autonomous vehicles alongside legacy manual vehicles. The candidate will be collaborating with automotive control experts and human factors experts, providing experimental data to support the development and calibration of models.  Employ the simulation software they develop to answer fundamental research questions about how the dynamics of the transport network will be modified by interconnected and autonomous vehicles and what network level and vehicle level control strategies may be employed to improve both network performance and user experience. |

| Key accountabilities/primary responsibilities | | % Time |
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|  | To develop and carry out an area of personal research. | 40 % |
|  | Regularly disseminate findings by taking the lead in preparing publication materials for referred journals, presenting results at conferences, or exhibiting work at other appropriate events. | 20 % |
|  | Contribute to the writing of bids for research funding. | 5 % |
|  | Investigate models and approaches to test and develop them. |
|  | Collaborate/work on original research tasks with colleagues in other institutions. | 30 % |
|  | Carry out administrative tasks associated with specified research funding, for example risk assessment of research activities, organisation of project meetings and documentation. Implementation of procedures required to ensure accurate and timely formal reporting and financial control. | 5 % |
|  | Supervise the work of junior research staff. |
|  | Carry out occasional undergraduate supervision, demonstrating or lecturing duties within own area of expertise, under the direct guidance of a member of departmental academic staff. |
|  | Any other duties as allocated by the line manager following consultation with the post holder. |  |

| Internal and external relationships |
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| Direct responsibility to holder of research award or academic supervisor.  May have additional reporting and liaison responsibilities to external funding bodies or sponsors.  May be asked to serve on a relevant Academic Unit committee, for example research committee.  Collaborators/colleagues in other work areas and institutions. |

| Special Requirements |
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| To be available to participate in fieldwork as required by the specified research project.  To attend national and international conferences for the purpose of disseminating research results.  Applications will be considered from candidates who are working towards or nearing completion of a relevant PhD qualification. The title of Research Fellow will be applied upon completion of PhD. Prior to the qualification being awarded the title of Senior Research Assistant will be given. |

**PERSON SPECIFICATION**

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| Criteria | Essential | Desirable | How to be assessed |
| Qualifications, knowledge and experience | PhD or equivalent professional qualifications and experience in Science or Engineering discipline.  Good undergraduate degree or equivalent in Science, Engineering or Computer Science.  Detailed knowledge and understanding of computer modelling and simulation and software development.  Experience in applying computer modelling and simulation to engineering systems. | Experience modelling stochastic systems.  Experience modelling transportation systems and/or driverless vehicles.  Experience working with multiple programming languages (e.g. Python, Matlab, C++, Java).  Web development experience.  Track record of published research. | CV/Interview |
| Planning and organising | Able to organise own research activities to deadline and quality standards. |  | CV/Interview |
| Problem solving and initiative | Able to develop understanding of complex problems and apply in-depth knowledge to address them.  Able to develop original techniques/methods. |  | CV/Interview |
| Management and teamwork | Able to supervise work of junior research staff, delegating effectively.  Able to contribute to Academic Unit management and administrative processes.  Work effectively in a team, understanding the strengths and weaknesses of others to help teamwork development. |  | CV/Interview |
| Communicating and influencing | Communicate new and complex information effectively, both verbally and in writing, engaging the interest and enthusiasm of the target audience.  Able to present research results at group meetings and conferences.  Able to write up research results for publication in leading peer-viewed journals.  Work proactively with colleagues in other work areas/institutions, contributing specialist knowledge to achieve outcomes. |  | CV/Interview |
| Other skills and behaviours | Understanding of relevant Health & Safety issues.  Positive attitude to colleagues and students. |  | CV/Interview |
| Special requirements | Able to attend national and international conferences to present research results. |  | CV/Interview |

**JOB HAZARD ANALYSIS**

**Is this an office-based post?**

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| Yes | If this post is an office-based job with routine office hazards (eg: use of VDU), no further information needs to be supplied. Do not complete the section below. |
| No | If this post is not office-based or has some hazards other than routine office (eg: more than use of VDU) please complete the analysis below.  Hiring managers are asked to complete this section as accurately as possible to ensure the safety of the post-holder. |

## - HR will send a full PEHQ to all applicants for this position. Please note, if full health clearance is required for a role, this will apply to all individuals, including existing members of staff.

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| **ENVIRONMENTAL EXPOSURES** | **Occasionally**  (<30% of time) | **Frequently**  (30-60% of time) | **Constantly**  (> 60% of time) |
| Outside work |  |  |  |
| Extremes of temperature (eg: fridge/ furnace) |  |  |  |
| ## Potential for exposure to body fluids |  |  |  |
| ## Noise (greater than 80 dba - 8 hrs twa) |  |  |  |
| ## Exposure to hazardous substances (eg: solvents, liquids, dust, fumes, biohazards). Specify below: |  |  |  |
| Frequent hand washing |  |  |  |
| Ionising radiation |  |  |  |
| **EQUIPMENT/TOOLS/MACHINES USED** | | | |
| ## Food handling |  |  |  |
| ## Driving university vehicles(eg: car/van/LGV/PCV) |  |  |  |
| ## Use of latex gloves (prohibited unless specific clinical necessity) |  |  |  |
| ## Vibrating tools (eg: strimmers, hammer drill, lawnmowers) |  |  |  |
| **PHYSICAL ABILITIES** | | | |
| Load manual handling |  |  |  |
| Repetitive crouching/kneeling/stooping |  |  |  |
| Repetitive pulling/pushing |  |  |  |
| Repetitive lifting |  |  |  |
| Standing for prolonged periods |  |  |  |
| Repetitive climbing (ie: steps, stools, ladders, stairs) |  |  |  |
| Fine motor grips (eg: pipetting) |  |  |  |
| Gross motor grips |  |  |  |
| Repetitive reaching below shoulder height |  |  |  |
| Repetitive reaching at shoulder height |  |  |  |
| Repetitive reaching above shoulder height |  |  |  |
| **PSYCHOSOCIAL ISSUES** | | | |
| Face to face contact with public |  |  |  |
| Lone working |  |  |  |
| ## Shift work/night work/on call duties |  |  |  |