School of Aeronautical, Automotive, Materials and Chemical Engineering

Loughborough University

LECTURER IN INTELLIGENT/AUTONOMOUS VEHICLES

Job Ref: REQ16724

As part of the University's ongoing commitment to redeployment, please note that this vacancy may be withdrawn at any stage of the recruitment process if a suitable redeployee is identified.

Overview of the Department

The Department of Aeronautical and Automotive Engineering (AAE) is one of three departments making up the School of Aeronautical, Automotive Chemical and Materials Engineering. The Department has a well-established reputation for its research and degree programmes. Undergraduate courses in Automobile and Aeronautical Engineering began in 1919 and 1935 respectively; today the Department enjoys a high status in the UK academic community with 33 full-time academic staff members. The Automotive Engineering programme remains specialist in nature and stands out in the UK academic community. Aeronautical Engineering is one of few in the UK and ranks highly amongst peers, and both Aeronautical and Automotive Engineering appear in the top 10 of undergraduate league tables. The University's performance in REF positions Loughborough as a leading research University, with the Times Higher ranking Loughborough 14th in the UK and 9th in England for research intensity. The department's annual research grants and contracts income is currently around £5 million per annum. This supports a research community of about forty post-doctoral research associates, seventy-five research students and a number of technical and administrative staff. In both research and teaching, the Department enjoys strong industrial links that support research sponsorship and collaboration, student placement and graduate employment. The department hosts the Rolls Royce University Technology Centre in Combustion System Aero Thermal Processes and the new £10 million National centre of excellence in gas turbine combustion systems and the Caterpillar Innovation and Research Centre.

Loughborough University Achievements http://www.lboro.ac.uk/about/achievements/
Loughborough University Research http://www.lboro.ac.uk/research/#
Aeronautical and Automotive Engineering http://www.lboro.ac.uk/departments/aae/
Aeronautical and Automotive Engineering Research http://www.lboro.ac.uk/departments/aae/research/
Aeronautical and Automotive Research facilities
http://www.lboro.ac.uk/departments/aae/research/majorlaboratoryfacilities/

Research Activity in Autonomous and Intelligent vehicles.
This research area focuses on the application of a broad range of autonomous control and system techniques to aerospace and automotive applications with the aim of improving reliability, safety, efficiency and intelligence of modern transportation systems.

The research activity includes:

- Integration and Flight Test of Solid Oxide Fuel Cells on Small Scale Unmanned Aircraft.
- Towards More Autonomy for Unmanned Vehicles: Situational Awareness and Decision Making under Uncertainty.
- Man-portable unmanned aircraft systems powered by fuel cells.
- Driver modelling and characterisation and workload modelling
- Driver predictive modelling
- Collision Avoidance and Its Verification for Civil Unmanned Aircraft Systems.
- Terminal Regional Operation of Unmanned Aircraft Systems.
- Condition and Health Monitoring of Electromechanical Actuators.
- Platform Health Management and its verification
- Remote sensing using autonomous platforms
- Development of Algorithms for sensor fusion, autonomous control guidance and planning

The autonomous and intelligent vehicle research is supported by a strong research record and capability in control and reliability and risk analysis. Control applications includes, for example, engine and powertrain control, hybrid propulsion, diagnostic strategies for engines and vehicle dynamics applied to handling and ride, driving assistance and motion cueing in simulator applications. Reliability and risk analysis is applied to fault diagnostics, safety system optimisation, demand modelling, vehicle safety and new hazard analysis technologies and reliability modelling of phased missions.

The post
The Department has identified autonomous vehicles as a strategic development area for growth in both aeronautical and automotive engineering. The creation of this post is a part of the department's long term investment in significantly expanding its already internationally leading research capability in this field. The successful candidate will strengthen and broaden the existing research activity and grow Loughborough's International reputation in this area. We are interested in applications of control, information and computer technologies in areas of Aeronautical and Automotive Engineering that are critical to providing sustainable transport systems, reducing development costs, and increasing vehicle intelligence, whilst ensuring safety and reliability. We are also interested in candidates with the vision to expand the research into the growing areas of intelligent road and off road vehicles. The candidates will have expertise in one or more relevant fundamental disciplines that complement and add to our existing research capabilities. Candidates in other disciplines closely related to autonomous vehicles that can demonstrate synergy will also be considered.

Job Description

Please note that this is a generic job description for the position of Lecturer.

Job Grade
Research, Teaching and Enterprise Grade 7

Job Purpose
To take a leading role in developing and enhancing the research, teaching and enterprise activities of the School of Aeronautical, Automotive, Chemical and Materials Engineering in the area of Autonomous Unmanned Vehicles and/or unmanned vehicle technologies.

Job Duties

Research

- To purse a personal research programme consistent with the research priorities of the School of Aeronautical, Automotive, Chemical and Materials Engineering that increases the global visibility and reputation of the University.
- To secure external research funding.
- To supervise and manage research projects.
- To publish the outcomes of research in outlets of international standing.
- O arrend and contribute to major international conferences.
- To supervise postgraduate students at Masters and Doctoral levels.
- To collaborate in research initiatives with colleagues both within the University and externally.

Teaching

- To work with colleagues in the School to deliver an exceptional learning environment for students.
- To teach and inspire undergraduate and postgraduate students and to conduct associated assessments.
- To provide academic and pastoral support to undergraduate and postgraduate students.
- To promote the use of a range of methods and techniques in teaching, learning and assessment.
- To engage in the evaluation and development of modules for which you have responsibility, in terms of content, delivery and assessment.
- To be responsible for the design and content of specific areas of teaching and learning within he School's undergraduate and postgraduate programmes.
- To cooperate with colleagues in the continuous review and development of the School's taught programmes and curriculum.

Enterprise

- To engage with business, public and voluntary organisations through knowledge exchange activities such as student projects and placements, research collaboration, consultancy and specialist training
- To create social, cultural and economic impact from academic, especially research activity.
- To secure external funding in support of these activities.
- To seek opportunities for the commercialisation of research and formation of social enterprises.

Related Activities and Functions

- To work effectively with relevant administrative, technical and academic staff in the School and across the University.
- To carry out specific administrative roles and functions as may be reasonably required.
- To take part in and, on occasion, act as chair of one or more School committees.
- To engage in training programmes in the University (e.g., through Staff Development) which are consistent with your needs and aspirations and those of the School
- To undertake such other duties as may be reasonably requested and that are commensurate with the nature and grade of the post.
- To engage fully with the annual Performance and Development Review (PDR) process.

Points To Note

The purpose of this job description is to indicate the general level of duties and responsibility of the post. The detailed duties may vary from time to time without changing the general character or level of responsibility entailed.

Special Conditions

All staff have a statutory responsibility to take reasonable care of themselves, others and the environment and to prevent harm by their acts or omissions. All staff are therefore required to adhere to the University's Health, Safety and Environmental Policy & Procedures.

All staff should hold a duty and commitment to observing the University's Equality & Diversity policy and procedures at all times. Duties must be carried out in accordance with relevant Equality & Diversity legislation and University policies/procedures.

Successful completion of probation will be dependent on attendance at the University's mandatory courses which include Respecting Diversity and, where appropriate, Recruitment and Selection.

Organisational Responsibility

Reports to the Dean of School.

Person Specification

Your application will be reviewed with respect to meeting the essential and desirable criteria listed below. Your application will be reviewed against the essential and desirable criteria listed below. Applicants are strongly advised to explicitly state and evidence how they meet each of the essential (and desirable) criteria in their application. Stages of assessment are as follows:

1 – Application
2 – Test/Assessment Centre/Presentation
3 – Interview

Essential Criteria

Area	Criteria	Stage
Experience	Background in an engineering subject with specific and current expertise in unmanned vehicles (for example, in air and space, or ground vehicles) and/or autonomous vehicle technologies.	1,2
	Currently and demonstrably active in research in autonomous and unmanned vehicles, or applications of autonomous vehicle technologies.	1,2
	Experience of working in an internationally recognised academic research environment, including significant experience at post-doctoral (or equivalent) level.	1
	Experience of authoring a substantial body of original work, in the highest quality refereed academic journals and / or as influential company reports.	1
	Significant experience of successfully supervising the projects of taught and research students or company staff at equivalent levels	1.3
Skills and abilities	Demonstrated ability to develop an original research programme on your own initiative and to persuade others of its importance orally and on paper	2,3
	Demonstrated ability to secure research and/or enterprise funds from external / company sources.	1,3
	Demonstrated ability to create social / cultural / economic impacts from professional activity	2,3
	Ability to teach and supervise undergraduate and postgraduate students in Autonomous Vehicles and related areas.	1,2
	Excellent communication and interpersonal skills which give you the ability to engage with students, colleagues, business and other agencies on a wide variety of matters.	1,2,3
	Ability to work as part of and to lead a team.	2,3
	Excellent IT skills.	1
Training	Commitment to and evidence of continuing professional development.	1.3
Qualifications	An outstanding educational profile up to and including first degree and/or Masters in relevant area	1
	Relevant PhD or equivalent experience in Autonomous Unmanned Vehicles or autonomous system technologies	1
Other	Commitment to observing the University's Equal Opportunities policy at all times.	1,3

Desirable Criteria

Area	Criteria	Stage
Experience	Experience of presenting research work at international conferences.	1
	Experience of teaching and assessment at undergraduate and postgraduate level.	1,3
	Experience of successfully supervising the projects of taught and research students or company staff at equivalent levels.	1,3
	Experience of work in or in collaboration with Industry	1
	Experience in commercial exploitation of products / services or formation of social enterprises	1,3
Skills and abilities	Ability to take part in module and programme development.	3
	A sound understanding of the structure of universities and issues facing the UK higher education sector, for example: • research funding opportunities in UK HE. • the challenges faced in recruiting students to UK HE	1,2,3
Qualifications	Achieved or progressing towards appropriate professional status.	1

Conditions of Service

The position is FULL TIME and OPEN-ENDED. Salary will be on Research, Teaching and Enterprise Grade 7, (£39,324- £46,924) per annum, at a starting salary to be confirmed on offer of appointment.

The appointment will be subject to the University's normal Terms and Conditions of Employment for Academic and Related staff, details of which can be found here.

The University is committed to enabling staff to maintain a healthy work-home balance and has a number of family-friendly policies which are available at http://www.lboro.ac.uk/services/hr/a-z/family-leave-policy-and-procedure---page.html.

We also offer an on-campus nursery with subsidised places, subsidised places at local holiday clubs and a childcare voucher scheme (further details are available at: http://www.lboro.ac.uk/services/hr/a-z/childcare-information---page.html

In addition, the University is supportive, wherever possible, of flexible working arrangements.
We also strive to create a culture that supports equality and celebrates diversity throughout the campus. The University holds a Bronze Athena SWAN award which recognises the importance of support for women at all stages of their academic career. For further information on Athena SWAN see http://www.lboro.ac.uk/services/hr/athena-swan/

Informal Enquiries

Informal enquiries would be welcome and should be made to Professor Martin Passmore, Head of Department, Aeronautical and Automotive Engineering by email at m.a.passmore@lboro.ac.uk or by telephone on +44(0)1509 227250

Applications

The closing date for receipt of applications is **2 December 2016.**