

Fully-funded EU PhD Studentship

Closing Date: 30th September 2017 (23:59 UK time)

Start Date: 1st November 2017

Project Title

Safe and Seamless Transfer of Control Authority

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Project Details

Automotive manufacturers and draft (EU) regulations require enabling the driver to immediately take-over control from a vehicle driving under automated control. However, human drivers may not be able to safely control the vehicle because they are not sufficiently prepared for the task. This drives the need for a system to safely manage the transition from Automated to Manual Driving. Such a system needs to get the driver back into the loop and be supported by a driver monitoring system ("Driver Availability Recognition System"). The driver monitoring system ensures that the driver is ready to take over. If the driver is not ready and the automated system cannot continue to control the system, a "Minimum Risk Manoeuvre" that brings the vehicle to a safe stop may be required. A number of critical research questions should be answered to properly design the monitoring of the driver and transition of control in a safe way: What are the different situations and use cases where control transition is required? What is the feasibility of using shared control during the transition to provide a safe transition and to monitor the driver's ability and willingness to engage?

The studentship will combine both analysis and development of automated vehicle systems and human-centred experiments. The experimental work will be conducted in the University of Leeds Driving Simulator (<http://www.uolds.leeds.ac.uk/>), one of the most advanced such facilities in the world. The simulator will include a drive by wire system supplied by Nexteer that will provide a production quality shared haptic control system. The simulator also includes several camera based driver monitoring systems that can be used to evaluate the driver's ability to take control. To answer the research questions will require the development of concepts and requirements for the driver monitor and transition system and testing those concepts within the driving simulator. Experiments should look at different road layouts and situations, and the driver assessment strategies should include the fusion of driver state information provided by the shared haptic control along with the camera systems.

The work will build on prior automated vehicle research at the University of Leeds. Over the last ten years, researchers at the Institute for Transport Studies have studied a variety of issues relating to transfer of control via projects funded by EPSRC and the EU.

The studentship will be funded by Nexteer Automotive and Nexteer staff will be closely involved in the supervision allowing for an excellent understanding of the real world issues.

Entry Requirements/necessary background

Applicants should have an appropriate background in engineering, psychology and/or human factors, ideally with some experience of work on the safety-related aspects of driving. A good bachelors degree (first or upper second class or equivalent) is a requirement. A relevant masters qualification is desirable.

Further information about entry requirements can be found here: <http://www.its.leeds.ac.uk/courses/phd/apply/>

How to Apply: Please send a CV and a short 'statement of motivation' to Professor Richard Romano (r.romano@leeds.ac.uk). Further information will then be provided. Professor Romano is also available for informal consultation if you would like to find out more about the project.

Funding

Funding is available for UK and EU students. Funding is available for 3 years. It will provide tuition fees (£4,250 for 2017/18) and tax-free stipend (£14,553 for 2017/18). A Research Training Support Grant is also provided.

We welcome scholarship applications from all suitably-qualified candidates, but UK black and minority ethnic (BME) researchers are currently under-represented in our Postgraduate Research community, and we would therefore particularly encourage applications from UK BME candidates. All scholarships will be awarded on the basis of merit.