PhD Title: Advanced Electric Vehicle Control Algorithms Enabled through Machine Learning and Model-Based Design Methods

Supporting Company: Jaguar Land Rover (JLR)

Funding: EPRSC PhD studentship plus industrial top up

Project Supervisor: Dr James Marco

Start date: As soon as possible

This fully funded PhD studentship represents a unique opportunity to undertake advanced control system design and modelling research in close partnership with a leading UK company and their supply chain.

The successful candidate will be embedded within a combined university-industry team that are developing new mathematical models, advanced control systems and novel test methods to enable the launch of future electric, autonomous and connected vehicles.

The research challenge for this PhD is to optimise a novel framework for managing electric vehicle telemetry data and through a process of machine learning to translate this data into useful engineering information for new, model-based, control system solutions for the vehicle’s high voltage battery. The research will consider, but is not constrained to:

- Supporting Jaguar Land Rover (JLR) research engineers to refine their state of charge (SoC) and state of health (SOH) estimation algorithms for the battery management system (BMS) to better quantify and manage battery degradation and electric vehicle performance.
- The development of data analysis methods identifying potential system faults and mitigating their occurrence within the vehicle.
- To understand the impact of data and cybersecurity for a future electric vehicle fleet within the UK and overseas.

Qualifications: This ideal candidate will have a strong academic background in either: mathematical modelling, control system design, electronics and computer science. They will have experience in using Matlab and Simulink and have a passion for research.

Eligibility: To be eligible for this project the successful applicant should have indefinite leave to remain in the UK and have been ordinarily resident here for 3 years prior to the project start-date, apart from occasional or temporary absences. Additional details of these criteria are available on the EPSRC website.

Funding:

This position provides a 4 year tax free stipend (for UK/EU nationals) of £14,553 plus a £3,000 industrial top up.

Apply:

If you would like to be considered for this role – or have any questions about the project – please complete our online enquiry form