Optimization of artificial intelligence algorithms for deployment in embedded systems with application to autonomous driving
PhD

Funding: £17,553 for 3.5 years (for UK/EU students)
Company: Jaguar Land-Rover
Supervisor: Professor Giovanni Montana and Professor Carsten Maple
Start Date: As soon as possible

Project overview

This is an exciting opportunity to work as part of our new Data Science group at WMG, University of Warwick and Jaguar Land Rover, for the duration of your PhD.

Artificial Intelligence (AI) algorithms based on large neural networks currently provide state-of-the-art performance in several computer vision tasks, including real-time object recognition and semantic segmentation. Such recent advances in deep learning motivate the use of deep learning in sensing applications such as autonomous driving. However, the excessive computational and energy consumption requirements remain an important impediment for the deployment on constrained embedded devices. A recently explored solution space lies in compressing - approximating or simplifying - deep neural networks in some manner before use on the device.

In the first part of this project, we will explore general-purpose techniques for compressing any type of very large and deep neural network – including fully-connected, convolutional, recurrent neural networks, as well as their combinations, and obtaining a global view of parameter redundancies. A number of methodologies will be explored, including reinforcement learning.

In the second part of the project, in collaboration with Jaguar Land Rover (JLR), we will further optimise the algorithms for a range of applications in autonomous driving.

Qualifications:
Candidates should have a degree in Statistics or Computer Science, programming experience and ideally prior exposure to machine learning.

Funding:
Due to funding regulations this project is open to UK/EU students only.

This position provides a tax free stipend and an industrial top up, totalling £17,553 for 3.5 years.

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.

To apply
If you would like to be considered for this position or have any questions please complete our online enquiry form.