University of Sussex, UK
Advanced Communication and Networking in Connected Vehicles

1. Project summary
*Connected vehicles* is a research area of significant importance in our increasingly mobile, intelligent and interconnected world. With multiple disciplines and emerging technologies, revolutionary changes and improvements have been done to our transportation systems, which will significantly enhance our travel experience in safety, efficiency, and eco-environment and make our mobility more enjoyable, comfortable, and sustainable. Current research activities in the design of connected vehicles include large-scale distributed sensors networks, advanced in-vehicle, Vehicle-to-Vehicle (V2V), Vehicle-to-Infrastructure (V2I) communication systems, cooperative communications technologies, heterogeneous networks, and networked electric vehicle, etc. This project will focus on innovative research in radio signals access and resources allocation, protocol and QoS solutions of vehicular networks to tackle the challenges and shape the next generation 5G communication technologies for connected vehicles.

2. Research skills
The accepted candidates will work on exciting research problems at the intersection of vehicular communications, networking and edge/cloud computing. The research will be characterized by a theoretical analysis of the problems and innovative solutions, as well as by an experimental and simulation study, to investigate the performance of the proposed solutions. A potential candidate should have strong background in at least one (and preferably more than one) of the following skills:
1) Knowledge of wireless communication and networking technologies, especially the vehicular communication network architectures and protocols.
2) Mathematical knowledge, such as cross-layer optimization, stochastic process and probability theory, to characterize wireless communications and network problems.
3) Program skills of wireless network simulators, such as OMNeT++, NS-2/3 and MATLAB.
The PhD candidate will have the opportunity to collaborate with world-class academic and industrial partners, such as NXP and Toyota. The knowledge and skills learned from this project will help the candidate to purse jobs in information and communication technology (ICT) industry or academia.

3. Research environment

The Communications Research Group in University of Sussex is highly successful in both fundamental and applied research. The research team is now working a series of projects looking at future applications, such as self-driving vehicles and IoT, drawing on the School’s research expertise in 5G mobile communications, Artificial Intelligence and autonomous systems engineering. In addition, Dr. Sheng has established productive links with the communications and automotive sectors, including with Toyota and NXP, as well as a growing and diversified funding stream from EPSRC and Royal Society, etc.

4. Funding information
The Scholarship includes a three year stipend at a standard rate (currently £14,553 per annum) and, in addition, tuition fees at £12,000 per annum for oversea applicants.

For questions, please contact:
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