

Autonomous Vehicles

Seminar Chair: Tim Armitage, ARUP
UK Autodrive Project Director

- **Nigel Wall**, *Director Climate Associates*, will give an introduction to the 5 levels of autonomous capability for road vehicles that have been defined, and give examples of vehicles that have various levels of autonomous capabilities. His paper, **Progress towards Fully Driverless Cars**, will also touch on some ethical and legislation questions.
- **Nick Carpenter**, *Engineering Director, Delta Motorsport Ltd*, will talk about the **Autonomous vehicles: The status of technology development**. He will explore what constitutes an autonomous vehicle and the key challenges in delivering a truly autonomous vehicle service.
- **Brian Matthews**, *Head of Transport Innovation, Milton Keynes Council*, will talk about **UK Autodrive - Exploring the potential for Connected and Autonomous vehicles in an urban environment**. He will explore the findings of this research programme and how Connected and Autonomous Vehicles can potentially support wider mobility and social objectives for urban living in the context of a rapidly growing city, such as Milton Keynes.
- **Prof Prashant Pillai**, *School of Mathematics & Computer Science, Faculty of Science and Engineering, University of Wolverhampton*, will talk about the **Security for Connected & Autonomous Vehicles** in the light of increased cyber security threats.

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Autonomous Vehicles

Are They as Safe as we are Led to Believe?



Wednesday 20 November 2019, 6:45 pm
(Registration & light refreshments from 6:00pm)

**Weston Auditorium, De Havilland Campus,
University of Hertfordshire, Hatfield, AL10 9EU**

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EMSTA Prestige Seminar 2019

Speakers

Professor Ian Campbell, Professor of Applied Physiology, Deputy Vice Chancellor, University of Hertfordshire.

Tim Armitage, ARUP, UK Autodrive Project Director.

Tim Armitage is an Associate Director at Arup with considerable experience of leading and contributing to multi-stakeholder projects within a range of mostly transport domains. Tim coordinates the future mobility activity on behalf of Arup's Advanced Digital Engineering practice and was the Project Director for the recently completed UK Autodrive connected and autonomous vehicle research and demonstration project.

Nigel Wall, Director Climate Associates.

Nigel is an established innovator; he chairs the Royal Institute of Navigation's Land Navigation & Location Group, and the Communications Interest Group at ITS UK. In recent years he has acted as a Monitoring Officer for Innovate UK overseeing twelve collaborative R&D projects in the domain of connected and autonomous vehicles.

Nick Carpenter is founder and Engineering Director of UK-based Delta Motorsport, leading all R&D, design and simulation activities. Prior to establishing Delta in 2005 Nick held a variety of engineering positions in the road and race car sectors. Since 2007 Delta has broadened its capabilities significantly, now developing its own products, and working on two new autonomous vehicle designs – building on its expertise in vehicle electrification and hybrid technology.

Brian Matthews, Head of Transport Innovation, Milton Keynes Council.

Brian has taken up the role of leading on the development and delivery of the council's programme of Transport Innovation, supporting Milton Keynes growth as a leading Smart City. He managed the delivery of MK's Electric Bus Project (UK's first fully electric bus service). He led the council's involvement in the UK Autodrive project.

Prof Prashant Pillai, School of Mathematics and Computer Science, Faculty of Science and Engineering, University of Wolverhampton.

Over the years, Prof Pillai has taught and researched a range of subjects in Electronic Engineering and Computer Sciences. His current research interest lies in the application of AI and developing novel security solutions for safety critical systems (eg. smart grid, autonomous cars, aeronautical systems and robotics).

Dr Rodney Day, Dean of the School of Engineering and Technology, University of Hertfordshire.

Autonomous Vehicles Programme

6:00 pm Registration, refreshments and networking

6:45 pm Seminar

Welcome: Professor Ian Campbell

Opening Remarks: Tim Armitage, ARUP, UK Autodrive Project Director.

Our Chair for the evening will present the 2019 EMSTA Award to an outstanding young Arkwright Scholar. He will then set the scene for the Seminar.

Nigel Wall - Progress towards Fully Driverless Cars

Nigel will introduce the 5 levels of autonomous capability for road vehicles that have been defined. He will consider the opportunities and challenges for the deployment of vehicles with lower levels (limited) autonomous capability. The introduction of these systems raises many technical challenges, but also ethical and legislation questions, some of which will be mentioned. The tragic death involving a self-driving Uber in the USA will be reviewed. Looking forward, the full level 5 autonomy promises to redefine that way that we own and use cars.

Nick Carpenter - Autonomous vehicles: The status of technology development

Nick will explore the fundamentals of what constitutes an autonomous vehicle, what's required to build one and the state of the art in each of the key on-vehicle technologies, from sensing to computing and vehicle motion. He will explore the key challenges in delivering a truly autonomous vehicle service.

Brian Matthews - UK Autodrive - Exploring the potential for Connected and Autonomous vehicles in an urban environment

Brian will explore the findings of this research programme and discuss how Connected and Autonomous Vehicles can potentially support wider mobility and social objectives for urban living in the context of a rapidly growing city, eg. MK.

Prof Prashant Pillai - Security for Connected & Autonomous Vehicles

The proliferation of digital technologies embedded in connected and autonomous vehicles (CAVs) increases the potential of cyber-attacks. This talk will examine the changing landscape of cyber security and its impact for CAVs. It will present the challenges in securing CAVs and the principles of cyber security for automated vehicles defined by the government and the new cyber security standard for developing self-driving car technology.

Open Forum: questions and answers

Vote of Thanks: Dr Rodney Day

9:30 pm Close