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CSNDSP

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Special Session on

# Signal Processing, sensing and communication for Connected and Automated Vehicle

Name and affiliation of organizers:

## Dr Sujan Rajbhandari

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**Dr Sujan Rajbhandari (SMIEEE)** is a Senior Lecturer at Bangor University, where he is working in the field of optical wireless communication. He received his PhD from Northumbria University in 2010. Between 2009-2012, he worked at Northumbria University a senior research assistant and research fellow. In 2012, he joined the communications research group at the University of Oxford and worked in the EPSRC's funded Ultra-parallel visible light communications (UP-VLC) project which was a collaboration of five UK's leading Universities (Oxford, Cambridge, St Andrews, Edinburgh and Strathclyde). He then undertook lecturer and senior lecturer in electrical and electronic engineering at Coventry University before joining Huawei Technologies, Sweden in 2020. He is a senior member of IEEE and an associate member of the Institute of Physics.

## Dr Bo Tan

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**Dr Bo Tan** is a tenure track Assistant Professor in Tampere University Faculty of Information Technology and Communication Sciences (ITC) Finland, where he is working in connectivity and sensing for intelligent machines. He received his PhD in digital communication from The University of Edinburgh in Nov 2013 and joined University College London and the University of Bristol as a postdoc researcher in radar system design until 2016. He participated in UK EPSRC SPHERE IRC (EP/K031910/1) and ERC CHAOSNETS (279976) projects. He was a Co-I in the UK EPSRC OPERA project (EP/R018677/1, 2018 ~ 2020) before joining Tampere University. His research covers wireless connectivity solutions for autonomous systems, non-intrusive radio sensing and phase array radar for healthcare and indoor robotic navigation. His research on passive wireless sensing has been granted patent and in joint development with industries.

## Scope of the session

Connected and automated vehicle (CAV) is a paradigm-shifting transportation concept that has a great potential to reshape future transport systems. Though CAV is a relatively new concept, several advancements have been achieved to make a high level of autonomous driving. Signal processing, sensing, communication and artificial intelligence are the key technologies that have underpinned the CAV. The focus of the special session will be on the recent advancement in key technologies for CAV including (but not limited to): advanced signal processing, communication, sensor development and fusion, environment and pedestrian detection, and artificial intelligence.

*Prospective authors are invited to submit original and unpublished work on the following research topics related to this Special Session:*

- Advanced signal processing and communication
- Radio sensing for vehicles
- Multi-sensor fusion
- Fusion of communications and sensing
- Machine learning and artificial intelligence
- Environment and Pedestrian detection
- Human-machine interaction
- Localization and mapping
- Security