

Call for Papers

Track 9 – Communications and Applications for Connected and Autonomous Vehicles on Land, Water, and Sky

Track Chairs:

Raphael Frank, University of Luxembourg
Francesco Malandrino, CNR-IEIIT, Italy

Scope and Motivation:

Connected and automated vehicles operating on land, water and sky are enabling a plethora of new applications to make mobility safer, faster, cleaner and more efficient. This interdisciplinary and highly active field of research requires experts with complementary expertise from academia and industry to join forces. One aspect is the connectivity that allows those vehicles to cooperate by exchanging relevant and timely information using various network technologies (ITS G5, 5G and beyond, Cellular Networks, etc.). Another important aspect is the specification and testing of the autonomous system itself, which includes the full functional stack from perception to control over localization and planning. Finally, the mobility modes and their respective environments, being it on land, water or in the air pose a number of specific research challenges by themselves. This track intends to present, discuss and challenge the latest research those and other related topics.

Main Topics of Interest:

The track on communications and applications for connected and autonomous vehicles on land, water, and sky seeks original contributions in the following areas, as well as others that are not explicitly listed but are closely related:

- Autonomous vehicles and automated driving
- Autonomous/intelligent robotic vehicles
- Vehicle environment perception
- Cooperative driving and cooperative vehicle-infrastructure systems
- Vehicle-to-infrastructure and vehicle-to-vehicle (V2I/V2V) communication
- Wireless in-car networks
- 5G (and beyond) technologies for connected vehicles
- Simulation and performance evaluation techniques for connected and automated vehicles
- Vehicle system architecture and design
- Vehicular Internet of Things (IoT) infrastructure
- Intelligent vehicle software and computing infrastructure
- Edge data analytics for vehicular systems
- Cloud computing applications for vehicular systems
- Geographic information systems (GIS) or intelligent transportation systems (ITS)
- Applications for intelligent vehicles
- Artificial Intelligence applied to connected and automated vehicles
- Security and privacy issues and protection mechanisms
- Cyber-physical system modelling
- Early experience and field trials of connected and automated vehicles