

Call for Papers

Track 9 – COMMUNICATIONS AND APPLICATIONS FOR CONNECTED AND AUTONOMOUS VEHICLES ON LAND, WATER, AND SKY

Track Chairs:

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Scope and Motivation:

Connected and autonomous 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 to meet the following challenges in the domains of **communications and applications**:

- One first challenge is ensuring fast, robust, and efficient **connectivity**, so as to allow those vehicles to cooperate; technologies range from cellular and mobile broadband to WLAN, to Radar, to Visible Light Communication, and beyond.
- Connected vehicles will be required to provide a plethora of different **services**, with heterogeneous requirements in terms of bandwidth, latency, and computational power.
- Another important aspect is the specification and **evaluation** 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, be it on land, water, or in the air pose a number of specific research challenges by themselves.

Main Topics of Interest:

This track seeks original contributions in the following areas, as well as others that are not explicitly listed but are closely related:

- Connected vehicles and automated driving
- Connected 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
- Intelligent transportation system architecture and design
- Vehicular Internet of Things (IoT) infrastructure
- Intelligent vehicle communication and computing infrastructure
- Edge data analytics for vehicular systems
- Cloud computing applications for vehicular systems
- Applications for connected intelligent vehicles
- Artificial Intelligence applied to connected and automated vehicles

- Security and privacy issues and protection mechanisms for connected and automated vehicles
- Cyber-physical systems and tactile Internet on land, water, and sky
- Early experience and field trials of connected and automated vehicles