

## CAV Test & Evaluation

### Scope and goal

Time of connected and automated driving is coming, and Connected and Automated Vehicle (CAV) technologies offer potentially transformative traffic impacts. However, there is still one big challenge standing in the way of mass CAV production: the testing challenge. The most important problem we need to address is that at what point we can sign-off the intelligent functions knowing that certain scenarios have not yet been tested.

Along this challenge comes with more opportunities for authorities, industry, as well as scientific community. To ensure the safety of CAVs, rigorous tests are required: realistic test environment and test subjects; large scenario pool; critical situations and extreme cases; and enough scenario replications. Virtual simulation platform is the most commonly used tool for CAV evaluation. While its validity is questioned by a group of researcher, it is easy to setup and capable of realizing almost any intelligent function. As of now, a number of physical testing facilities are being established around the world. While physical test facilities have its limitations, such as not being able to provide traffic background, they are perfect in terms of realistic environment and subjects. Other testing methodologies, such as hardware-in-the-loop simulation, software-in-the-loop-simulation and augmented reality, combining the advantage of both simulation and field testing, are also making progress and evolving. On the other hand, other than evaluation platform, evaluation standard is also an important issue that is urgently requires addressing. What are the requirements for an intelligent function to hit the road is an important question to answer?

This special session focuses on the CAV test and evaluation in terms of mobility, safety, and sustainability. The main goal is to provide a common ground for stakeholders to share the state-of-art design and development of CAV test platforms that take in various forms, together with potential policy and guideline suggestions for CAV evaluation.

### Topics of interests

- Virtual evaluation platform design and development
- Physical test facility design and development
- Software-in-the-loop test platform design and development
- Hardware-in-the-loop test platform design and development
- Augmented reality applications in CAV test and evaluation
- New insights from recent field/simulation tests
- Policy and guideline for CAV test and evaluation

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