Overall research context

Multi-Vehicles Systems (MVS) advantages address many areas: safety with accident reduction; health while improving passengers comfort; transportation time since it reduces road congestion; ecology with fuel efficiency among other advantages. In this Ph.D thesis we take advantage from the recent development on Autonomous Vehicles (AVs) and Vehicle-to-everything communication (V2X) to solve complex navigation scenarios on highway environment.

Cooperative highway navigation

Current Objectives

- Reduce on-road accident by avoiding conflicting trajectories between CAVs and rear-end collisions.
- Increase highway capacity and solve merging bottlenecks.
- Avoid non-necessary acceleration changes improving thus the energy efficiency.

MVS formation configuration and reconfiguration

Perspectives

- Tackle on-ramp merging on highway scenario.
- Include vehicle’s dynamics on the proposed solution.

Eco-Cooperative Cruise Adaptive Control (eC-ACC)

On-ramp merging on highway