Competition for Motion Planning of Autonomous Vehicles | commonROAD

In recent years, different approaches for motion planning of autonomous vehicles have been proposed that can handle complex situations. This competition provides the opportunity for researchers to compare their approaches with others based on a large database of traffic scenarios.

Competition

In this competition, participants are provided with an extensive database of traffic scenarios with planning problems for each of which a feasible trajectory needs to be planned. Apart from the number of solved scenarios, submissions are assessed with regards to efficiency, safety, and compliance with traffic rules.

The competition is divided into two categories:

- **Interactive** scenarios using the SUMO traffic simulator.

- **Non-interactive** scenarios with provided predictions for other traffic participants.

The traffic scenarios are provided in the CommonRoad format and solution trajectories are uploaded to commonroad.in.tum.de. Our scenario database contains highways, urban environments, and features several types of traffic participants. Tools for parsing scenarios and useful software for motion planning are openly available within the CommonRoad framework.

Participation and Final Workshop

After the public release of the benchmark problems, solutions can be submitted online before the submission deadline. The best participants will have the opportunity to present their approaches at the final workshop as part of the *IEEE International Conference on Intelligent Transportation Systems (ITSC) 2021*. Only registered teams will be able participate in the final workshop.

Jury

The job of the jury is to come up with a consensus for working groups, define the problem instances, and ensure a fair competition. Anybody participating in the competition can become a jury member. We accept applications from academia and industry; a short email before March 31 to commonroad@lists.lrz.de suffices.

Each working group has a leader who is responsible for organizational aspects (presiding discussions, ensuring the workflow, etc.). The definition of the problem instances and the evaluation criteria are carried out by the working group.

Deadlines

Submissions consist of XML solution files submitted through commonroad.in.tum.de, where also details on the provided software, the evaluation, and submission guidelines can be found.

Deadline for becoming a jury member:	March 31, 2021
Benchmark problem release by the jury:	June, 2021
Submission deadline:	September 01, 2021
Workshop:	September 2021
Website:	`https://commonroad.in.tum.de/`

Prize

The jury will select the winner of the competition who will receive a prize of 3000 $ provided by our sponsor **IVEX**. To be eligible for the prize, the participant needs to be registered for the workshop and the motion planner needs to be published as open-source.

Organizers

Program chair:	**Matthias Althoff**, associate professor at the Technical University of Munich, Germany
Jury chair:	**Sven Koenig**, professor at the University of Southern California, USA
Publicity Chair:	**Mario Torres**, CEO of IVEX, Belgium
Evaluation Chair:	**Moritz Klischat**, Ph.D. candidate at the Technical University of Munich, Germany