Workshop Proposal

- Title:

CRMPC: Workshop on the Third CommonRoad Motion Planning Competition for Autonomous Vehicles

- Contents:
  - Motivation and objectives.
  - Relevance to the ITS community.
  - Topics of interest.
  - Dedicated website.
  - Format: Full day/half day/other (provide details)

In recent years, different approaches for motion planning of autonomous vehicles have been proposed that can handle complex traffic situations. However, these approaches are rarely compared on the same set of benchmarks. This half-day workshop will present the results of our large-scale motion planning competition for autonomous vehicles hosted via the CommonRoad website\(^1\), where the workshop will be announced as well\(^2\). Teams participating in the competition will have to solve motion planning problems for autonomous vehicles. Traffic scenarios in our competition contain highway and urban environments, and feature several types of traffic participants, such as passenger cars, buses, bicycles, etc. Our competition is a unique opportunity for researchers and practitioners around the world to compare and demonstrate their approaches on thousands of traffic scenarios. As part of this workshop, we will award the best teams with cash prize provided by our sponsors at IVEX\(^3\) as well as the opportunity to present and discuss their algorithm and solutions. Overall, we expect that more than 30 teams will participate in the competition.

Keywords—Motion Planning, Competition, Benchmark

- Organizers (names, affiliations, emails, and short bio):
  - Program chair: Matthias Althoff, associate professor of computer science at the Technical University of Munich, Germany (althoff@tum.de), organizer of the previous workshop (Website: click me)
  - Jury chair: Sven Koenig, professor of computer science at the University of Southern California, USA (skoenig@usc.edu), organizer of the previous workshop

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1. https://commonroad.in.tum.de/
2. https://commonroad.in.tum.de/competition/2023/announcement
3. https://www.ivex.ai/
• Evaluation chair: Stefan Licklederer, Ph.D. candidate of computer science at the Technical University of Munich, Germany (stefan.licklederer@tum.de)
• Publicity chair: Josefine Gassner, Ph.D. candidate of computer science at the Technical University of Munich, Germany (j.gassner@tum.de)

• Potential contributors to the workshop (names, affiliations, contact information, abstracts (if available):

Contributors to the workshops will be the best performing teams of the CommonRoad motion planning competition (TBD).

• Intended audience and expected attendance for the workshop (including a clear statement how interaction between presenters and attendance will be fostered):

Researchers and developers interested in motion planning for autonomous vehicles. We expect around 20-45 participants to be attending the workshop. The top performing teams in the CommonRoad Motion Planning Competition present their solutions, approaches and explain their algorithms they used to solve the benchmark problems. Interaction between the presenter and attendees are encouraged by discussion of the submitted solutions to the planning problems, interactive presentation of their motion planning process and longer question/interaction periods between presentations.

• Invited speakers (if any):

The top performing teams of the CommonRoad motion planning competition. In previous iterations, this included:
• Dr. John M. Dolan, Dr. Qin Lin (Carnegie Mellon University)
• Xiaocong Zhao (Tsinghua/Tongji University)
• Tinkei Cheng (Technical University Munich)

• Materials and equipment needed for the workshop:

• Location to host the presentations and talks
• beamer and possibly microphone

• Contact details of the proposers (email, postal address, etc):

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