

Coupling Autoware.Auto With The CommonRoad Motion Planning Framework



Technische Universität München

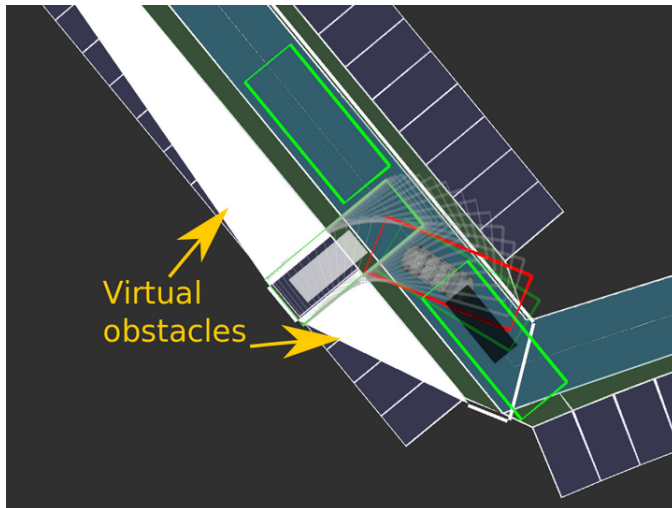


Fakultät für Informatik

Lehrstuhl für Echtzeitsysteme und Robotik

Background

One of the leading platforms for autonomous driving is Autoware, whose new generation Autoware.Auto¹ provides an open-source software stack based on ROS 2 for self-driving technology. However, considering motion planning, one big challenge of Autoware is that road scenarios lack reproducibility. In contrast, the open-source CommonRoad² benchmark suite contains diverse testing scenarios in different settings, such as highways, urban environments, dense traffic, and settings where interaction with bicyclists and pedestrians is particularly important. In addition, CommonRoad provides a motion planning framework in Python, which enables rapid prototyping of motion planners, along with additional tools.



Autonomous valet parking demonstration with Autoware.Auto

Description

In this context, we are looking for a student assistant to support us in the development of the Autoware-CommonRoad interface. Tasks will include the establishment of an easy-to-use interface bridging the CommonRoad motion planning framework with the Autoware.Auto open-source driving stack. Experiences with ROS (ROS 2 is beneficial) are required since the Autoware.Auto is built on the ROS 2. Basic programming skills in C++ and Python are also necessary for establishing the interface.

Application

Please provide a CV and a link to a git repository or something similar showcasing your experience with ROS through email to yuanfei.lin@tum.de with mail title [Autoware-CommonRoad HiWi Application, YOUR NAME]. The expected starting date is Wednesday 1st September, 2021.

Supervisor:

Prof. Dr.-Ing. Matthias Althoff

Advisor:

Yuanfei Lin, M. Sc.

Research project:

-

Type:

Student assistant(HiWi)

Research area:

Motion Planning, Middleware

Programming language:

C++, Python

Required skills:

Experience with ROS, able to work independently

Language:

English

Date of submission:

Monday 12th July, 2021

For more information please contact us:

Phone: -

E-Mail: yuanfei.lin@tum.de

Internet:

www.in.tum.de/i06/people/yuanfei-lin-msc/

¹[autoware.auto](https://autoware.org/autoware.auto)

²commonroad.in.tum.de