Chair for Computation in Engineering
Department of Geo, Civil and Environmental Engineering
Technical University of Munich

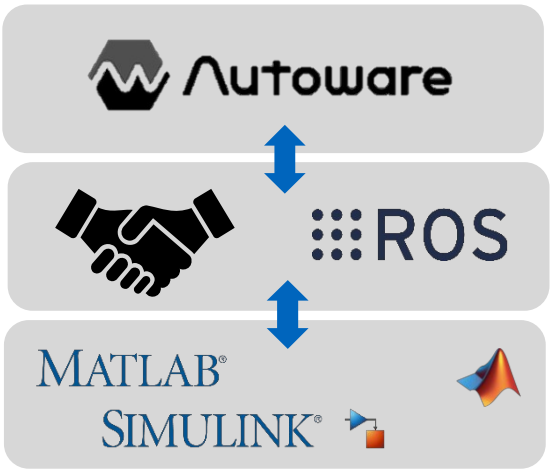
Modeling: ★★★★★
Mathematics: ★★☆☆☆
Programming: ★★★★☆
Science: ★★☆☆☆

Software Lab:

Automated Driving Systems - Co-Simulating Autoware with Simulink®

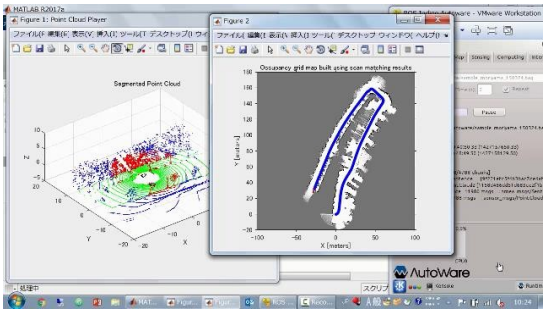
Setting

Autoware is an open-source, ROS-based automated driving stack with grown popularity among users. The project is about demonstrating interconnectivity between MATLAB®, Simulink® and their toolboxes with a state-of-the-art open source automated driving environment.



Your Goal

Key objective of this project is to connect Autoware to MATLAB® and Simulink® through Robotics System Toolbox™ for co-simulation. Additionally, an automated-driving co-simulation example needs to be developed and showcased.



Task

- Research on tools and co-simulation interface.
- Development of a proof concept software-demo based on a self-chosen, urban automated driving scenario.
- Documentation of advantages and limitations of involved tools.
- Publish findings on MATLAB Central FileExchange.

Supervisors

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- Stefan Kollmannsberger, Simulation in Applied Mechanics Group, stefan.kollmannsberger@tum.de

References

1. Takuya Azuma (Osaka Univ), *Cooperation between Autoware and MATLAB / Simulink software for automatic operation*, Proceedings of MATLAB Expo Japan 2017, matlabexpo.com/jp/2017/agenda.html.
2. Autoware Foundation, https://www.autoware.org/.
3. Autoware: *ROS-based open-source software*, https://github.com/CPFL/Autoware.
4. Robotics Operation System (ROS), http://www.ros.org/.