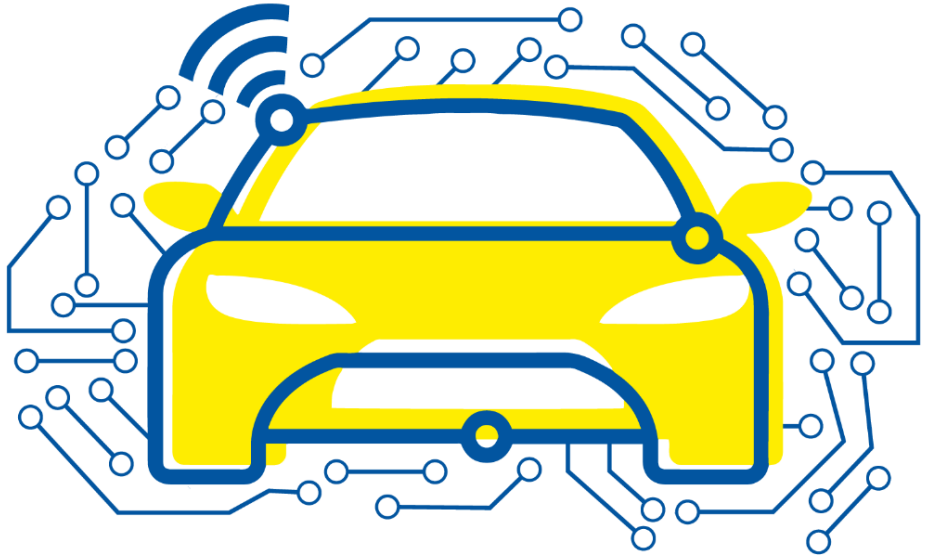
Automated and Connected Driving Challenges

Section 2 – Sensor Data Processing

Camera-based Semantic Grid Mapping Tasks



Bastian Lampe

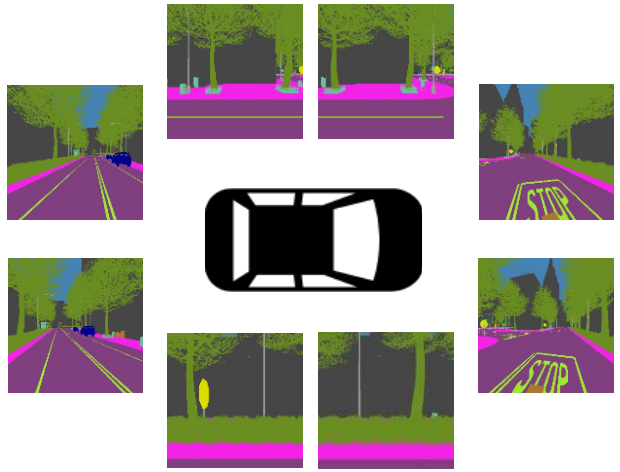
Institute for Automotive Engineering

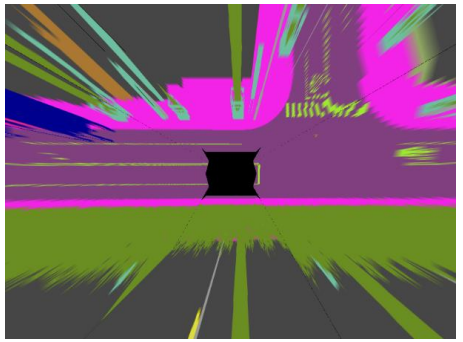
Camera-based Semantic Grid Mapping – Tasks

Basics in Jupyter Notebook

Jupyter Notebook “Camera-based Semantic Grid Mapping”

- Load images, and the camera parameters
- Use OpenCV to apply the inverse perspective mapping
- Use the pinhole camera model
- Apply coordinate system transformations
- Stitch multiple images in BEV





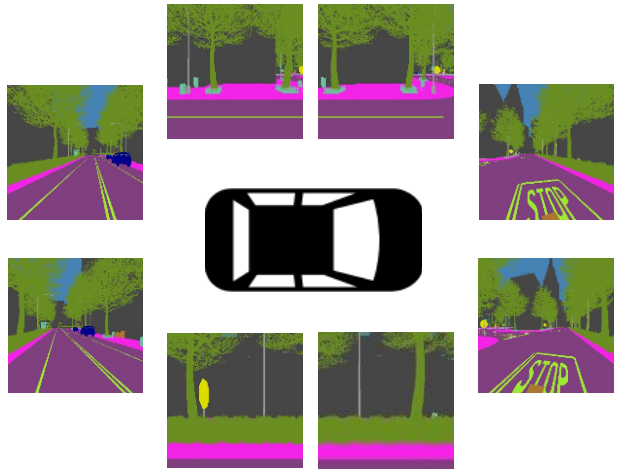
Images: ika

Camera-based Semantic Grid Mapping – Tasks

ROS Implementation

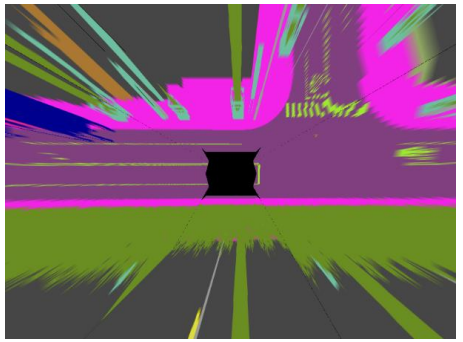
Jupyter Notebook “Camera-based Semantic Grid Mapping”

- Load images, and the camera parameters
- Use OpenCV to apply the inverse perspective mapping
- Use the pinhole camera model
- Apply coordinate system transformations
- Stitch multiple images in BEV



ROS Implementation of Inverse Perspective Mapping

- Inspect a Rosbag which contains camera data
- Learn about ROS' standard camera image and camera info message format
- Learn about synchronized subscribers
- Learn how to use the tf2 library
- Learn how to visualize the output of semantic grid mapping



Images: ika