The goal is to reconstruct a real urban scene in CARLA simulator. Previous work was develop to reconstruct real buildings and roads into CARLA. However, road height was not considered and therefore the whole map is flat.

The main goals are the following:

1. Include road height in order to reconstruct slopes and roads that cross at different heights (like in highways for example).
   - Read road information from an existing HD map.
   - Create a 3D road model using Blender or other CAD program using scripts.
   - Integrate the 3D model in CARLA.

2. Create a sidewalk next to the road.
   - Read road information from an existing HD map and OpenStreetMaps.
   - Define the sidewalk size given the road position and buildings position.
   - Create a 3D sidewalk model using Blender or other CAD program using scripts.
   - Integrate the 3D model in CARLA.

We are happy to answer questions regarding the topic, reference literature or alternative topics. In this case please contact the supervisor below for further information.

Requirements: Knowledge of Python or C++
Knowledge of 3D modeling program (Blender or others)
Independent, diligent and structured way of working

Keywords: CARLA, realistic environments, autonomous driving

Supervisor: Dr. Carlos Fernandez Lopez
Institut of Measurement and Control (MRT)
Tel.: +49-721-608-42341
Office: 243
Email: carlos.fernandez@kit.edu