

# Development of Virtual Traffic Environments for Simulator Studies

## Call for an Interdisciplinary Project Work in the Application Subject of Traffic Engineering and Control

### Motivation & Background Information

At our chair, we conduct traffic simulations for various scenarios and traffic settings. One of the key components of such studies is to have realistic 3D environments for various traffic scenarios. These virtual environments will be then integrated into our driving simulator to conduct human factor studies. It is crucial to ensure that the virtual environment reflects to some extent the real world and at the same time various scenario settings allows for simulator studies to be conducted considering different road designs or traffic situations. We expect for the virtual environment to be developed using predefined software (Matlab RoadRunner and Unity).

### Task Description

This IDP project is concerned with the development of several 3D environments that will be used to visualize new traffic systems. The requirements for the project are as follows:

- Literature review on 3D visualization methods and tools
- Development of road design using Matlab's Roadrunner tool
- Interfacing traffic simulations in SUMO with the selected game engine (preferably Unity3D)
- Successful integration of environment into simulator rendering software

### Accompanying Lecture (If applicable)

In general, the accompanying lecture can be selected in consultation with the supervisor from the entire list of courses offered by the Chair of Traffic Engineering and Control. For this IDP, the attendance to one of the following lectures is recommended:

- Traffic Flow Models (winter term)
- Autonomous Vehicles and Transportation Systems (summer term)
- Traffic Flow Simulation - Basics (summer term)
- Traffic Flow Simulation - Extension (winter term)

### Contact

**M.Sc. Maya Sekeran (maya.sekeran@tum.de)**

TUM – Chair of Traffic Engineering and Control

Arcisstraße 21, 80333 Munich

[www.vt.bgu.tum.de](http://www.vt.bgu.tum.de)