IVT – Assignments

Head: Prof. Dr. Kay Axhausen

Topic: Measuring the allocation of street space with vector GIS data

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Registration: www.ivt.ethz.ch/en/studies/downloads/assignments.html#registration

Modelling sustainable mobility transitions requires a precise knowledge about existing streets and their allocation of space to different modes of transport. However, this information does not exist at a sufficient level of detail at scale. So far, researchers at IVT have used open geo data from OpenStreetMap to approximate the road widths but this approach is based on many assumptions and is prone to errors.

In this project, you will develop a process for extracting precise data on the allocation of street space from public survey data (Amtliche Vermessung), as well as data from OpenStreetMap.

The tasks are (depending on final format/group size):

- Literature review on existing GIS approaches to measure road space and its allocation
- Implementing an automated collection of street measures (roadway width, sidewalk width, parking spaces, width of the public ground, façade-to-façade width, etc.) using the best publicly available data in Switzerland
- Comparing the accuracy of your approach with the previous method based only on OpenStreetMap and interpreting the differences
- Showing the allocation of road space (motorized traffic, cycling, parking, green spaces) in three Swiss cities: Zurich, Aarau, Basel
- Contributing the code to the open-source project SNMan: https://github.com/lukasballo/snman

Recommended lectures and skills:

- GIS I/II/III
- Solid Python programming skills

Credits: 8-24 ECTS, the exact scope will be adjusted to reflect the credits