**Leiter der Arbeit:** Prof. Dr. K.W. Axhausen

**Titel der Arbeit:** What’s the speed?

**Assistent/in:** P.M. Bösch, G. Sarlas

**Kontakt:**

**Anmeldung:**
- http://www.ivt.ethz.ch/studium/downloads/aufgabenstellungen#anmeldung

**Beschrieb der Arbeit:**
Imagine a car driving down a residential street just at the speed limit despite having its view obstructed by parked cars, children playing, pedestrians crossing the street and cars coming the other way. Everyone would definitely disapprove such a reckless driving. Unfortunately, transport simulations fail to fully account for such factors due to the inherent complexities. As a result, their outputs tend to systematically overestimate speed values and creating implications on the application of well-known empirical relationships such as the speed-flow relationship.

Recently, statistical models have been developed at IVT estimating the average daily speed on the streets by taking into consideration the built environment, socio-demographic characteristics, network aspects, etc. The research question that arises is how such models can supplement and improve the existing simulation frameworks, offering a way to combine these two different strands of literature.

The objective of the proposed thesis is to bridge this gap and investigate how this can be accomplished and draw sound conclusions. At first, the network scale issue would need to be addressed through matching a scaled-down simulation network to a more detailed and realistic street network (e.g. OpenStreetMap network) with the use of various existing routines. In the second part, the developed statistical models will be integrated within a state-of-the-art simulation framework (MATSim). More specifically, the connection between the average speed and both the flow capacity and the maximum speed should be established through simplified models on the basis of traffic flow theory. At last, different scenarios would have to be tested in order to assess the potential of simplified models and conclude on their ability to enhance the realism of simulations, and subsequently of their accuracy.

**Besonderes:** Erfahrung mit Java und/oder GIS-Tools von Vorteil; Sprache der Arbeit: Englisch.

**Mindestumfang:** 8 KP

**Empfohlene Lehrveranstaltungen:** Verkehr I