



Data Analytics and Mobility

Cities of the future have a growing demand in intelligent mobility services and infrastructure to support better mobility and enhance quality of life in urban areas. An increasing availability of urban data holds a great potential to facilitate efficient mobility services and infrastructure, for instance, through a better understanding of long-term trends (such as e-mobility) and their impact on transportation needs, or the correlation of mobility behavior in densely populated areas with influence factors such as weather, regional events or temporal fluctuations. Extraction, integration and analysis of heterogeneous mobility-related urban data is of interest to various stakeholder groups, including city inhabitants, city councils, providers of mobility services and public transportation. While data is spread across heterogeneous institutional repositories and Web platforms, semantic technologies and machine learning methods can be exploited to enable the extraction and analysis of data.

Examples of such data are:

- Queries for public transportation services
- Historical traffic speed records
- Environmental data
- Warnings about traffic incidents
- Location of construction sites
- Calendar of scheduled events

Possible topics for a MSc thesis in this context could address one of the following research questions through utilizing state-of-the-art machine learning and data mining methods:

- Prediction of road traffic from public transportation query logs
- Estimating the impact of events
- Impact of traffic incidents
- Verification of traffic incidents
- Prediction of congestion and bottlenecks in traffic
- Event detection

For further information, see the homepage of the project "Data4UrbanMobility": <http://d4um.l3s.uni-hannover.de> .

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