

Design of Problem Instances for City Logistics Vehicle Routing

Bachelor/Master Thesis

City logistics service providers (CLSP) are concerned with the efficient fulfilment of logistic operations in urban areas. Major tasks are the routing and scheduling of last mile deliveries. The planning of a CLSP is influenced by variety of factors such as varying travel times, uncertainty in customer demand (e.g. amount of goods or location) or structure of the traffic network.

To develop and test vehicle routing approaches that consider realistic conditions corresponding problem instances¹ must be modelled and generated with regard to real-world properties. Therefore, customers should be located on realistic locations within in the considered network, travel times should be derived from real world data and demands should follow reasonable assumptions.

The goal of this thesis is to design and evaluate problem instances for different city logistics vehicle routing problems. This includes decisions on the the considered street links of the traffic network (core network), the travel times, the location of customers and the demand of customers. The instances can be designed using existing street networks (e.g. OpenStreetMaps) and travel times can be modelled according to real world sources².

A basic understanding data analysis, geographic information systems (GIS) and vehicle routing problems is desired. The thesis may be written in English or German language.

If you have further questions regarding the thesis topic, feel free to contact me.

Patrick-Oliver Groß, M.Sc.
Technische Universität Braunschweig
Business Information Systems
Decision Support Group

Mühlenpfordtstrasse 23
38106 Braunschweig, Germany
phone: +49 531 391-3216
E-Mail: p.gross@tu-braunschweig.de
<https://www.tu-braunschweig.de/wininfo/team/gross>

¹An example for a VRP instance repository can be found at: <http://www.vrp-rep.org>

²INRIX Global Traffic Scorecard: <http://inrix.com/scorecard/>