



Deutsche Post Lehrstuhl
für Optimierung von
Distributionsnetzwerken

RWTHAACHEN
UNIVERSITY

Master Thesis

Exact and Heuristic Solution of the Truck Driver Scheduling and Routing Problem with Two Types of Breaks

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Our chair

Our chair is devoted to the development and implementation of decision support systems for solving and analyzing planning problems in logistics and production, especially transportation, network design, location planning, warehouse management and workforce scheduling problems. The methodological focus lies on mathematical modeling, exact and heuristics optimization, and machine learning techniques. Our intensive collaboration with Deutsche Post DHL and other industry partners provides a strong application focus for many of our projects.

Your task

Given a sequence of customers, the task of a truck driver is to visit each of these within certain time windows. At the same time, truck drivers must take breaks on a regular basis. In order to take a break, drivers have to look for an appropriate place to park their vehicle. We consider the problem of finding a shortest path in a network and a corresponding schedule such that every customer is visited in time, applicable break rules are respected, and every break is taken either at a customer or at a parking location. This is called the truck driver scheduling and routing problem (TDSRP). We consider a variant of this problem where short breaks (lunch breaks) and long breaks (nightly rests) are distinguished. This is called the truck driver scheduling and routing problem with two types of breaks (TDSRP-2B). In this master thesis, an existing MIP formulation as well as a heuristic solution method for the TDSRP-2B shall be implemented using the programming language Julia. Furthermore, the heuristic solution shall be enhanced to reduce computational runtime while obtaining consistent solution quality.

Your profile

- Reliable, independent and motivated way of working
- Conscientious and structured way of working
- Good knowledge of German and English
- Programming knowledge in Julia or the willingness to acquire the necessary knowledge on your own

If you are interested, please send an e-mail including your CV and transcript of records to Stefan Bomsdorf (bomsdorf@dpo.rwth-aachen.de).