At the Chair of Logistics and Supply Chain Management of TUM School of Management, we are looking for an interested and qualified student to conduct his/her

Bachelor thesis

on the topic

Measuring visual attractiveness in routing problems

The vehicle routing problem (VRP) is among the most studied combinatorial optimization problem. Commonly, its general objective is to minimize the travel cost of the vehicles used to fulfill customer requests. However, the solution achieving the lowest overall costs often results in complex and unappealing routes. Routes are considered visually unattractive when they are overlapping or expansive. Such routes, even if cost-optimal, are likely to be adjusted by the dispatcher or drivers on the operational level. Thus, this thesis aims to summarize and evaluate existing key performance indicators (KPIs) that measure the visual attractiveness of a routing plan and to analyze how drivers' choices can be included in such metrics.

Key project tasks:

- Review relevant literature.
- Implement existing and new scores to measure the visual attractiveness of a route plan.
- Evaluate and compare the measures on benchmark datasets.

Requirements:

The thesis is for Bachelor students of the Management and Technology program with a major in Operations and Supply Chain Management. Candidates should be familiar with the basic concepts of the vehicle routing problem. Experience with programming in Python is a plus. The ability to work independently, as well as analytical skills are required. The thesis should be written in English.

Earliest begin: October 2023

Supervisor: Christoph Kerscher

Application: Email with curriculum vitae and transcript of records to logtheses.log@mgt.tum.de