

Multi-Objective Analysis of the dynamic Vehicle Matching Problem in Ride Hailing Services

We are offering an interesting Master's Thesis in our team for solving the discrete optimization of matching vehicles to passenger requests. The problem has multiple objectives involving customer satisfaction (Pickup Delay) and business goals (serving maximum customers and minimum total vehicle travel miles). The first phase of the thesis consists of analyzing the Pareto front using JMetalPy (a python library for multi-objective optimization). In the second phase, dynamic requests will be simulated in an in-house simulator using the results of the first phase. The work involves programming in Python, and a small portion may also be in Java. The thesis will be at BMW (Garching).

Following are the requirements for a suitable candidate.

- A bachelor university degree in computer science, informatics, robotics, mathematics, physics, electrical engineering or a related field.
- Basic knowledge of discrete optimization techniques and Vehicle Routing Problem
- In-depth experience with Python and Java (optional).
- In-depth experience of data visualization with Python.
- Practical knowledge of agile software development and object-oriented software design principles.
- Business-fluent English or German

Interested candidates forward their resume, short motivation letter and possible start time to the following email address: ***arслан-ali.syed@bmw.de***