

## My Travel Companion: Mobility traces for route reconstruction



### Problem description

The main goal of the My-TRAC project is to develop a novel transport services platform, designed for public and private transport users in order to provide an improved passenger experience by developing and applying advanced behavioural and transport analytics and Artificial Intelligence algorithms to meaningful data gathered from diverse public transport and open data sources. One of the best data sources, available for any smartphone application, is the GPS traces. Such traces, collected over time, produce enormous value for understanding the mobility preferences of every person, but also the mobility preferences of the whole population or particular traveller archetypes. On the other hand, availability of road network structure and Automatic Vehicle Locations (AVL) for PT operators brings additional opportunities for mobility traces analysis. When combined with GPS traces, it allows to distinguish the parts of a person's trip that were done by car, active modes, or public transport. For example, if a trace shows that a person travelled by a certain city road for 15 minutes – were they travelling by bus or by car? Or, maybe, they were cycling? If there are a few minutes of dwelling time on a GPS trace of a person, were they just sitting in a bus, waiting for its departure, or did they have a bus transfer and took the trip's next leg in another bus? Answering these and similar questions is the main topic of this problem.

### Assignment

- Review of literature on the topic of GPS mobility traces analysis.
- Develop a mechanism to annotate a GPS trace of a person's trip with the chosen mode and route, with the help of available road network structures and AVL data from Dutch public transport operators. We want to understand the precision and limitations of available data, and provide an overview of which parts of a trip are the hardest to recognize correctly, or which particular conditions or situations may cause problems (e.g. transfers, egress outside of dedicated stops).
- Write a report and possibly a scientific paper.

### Information:

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- Possibility to combine writing the thesis with an industrial internship in a mobility company.