

My Travel Companion: Personalized route recommendation



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. Personal AI assistants already proved to be valuable and useful for routine decision making. The My-TRAC application is a travel companion designed to operate similarly to a human companion; understanding traveler's attributes and state-of-mind to derive conclusions from vague information as any human does. Why do people choose a certain mode of transportation over another, e.g. a car over a train, or a bus over a bicycle? How do they experience a trip, what makes them happy, or what drives their behavior? Traditionally used decision making factors, such as the time of the trip, the cost, the number of transfers and others that are usually used by personal assistants (such as Google Maps Directions or OpenTripPlanner), are inadequate in many cases, since they fail to incorporate factors such as perception of a trip's comfort, perception of reliability (perceived chance to complete a trip as planned) or safety (e.g. avoiding large crowds), the state of mind of a traveller (e.g. a person late for an important meeting vs. a person travelling for leisure on a weekend), the purpose of the trip, the personal access to options (e.g. owning a bike/car or having a bike-sharing subscription) and familiarity of a user with potential options. Failure to include these considerations into personal assistants often results in recommendations that are (rationally or irrationally) useless and are not followed by people. In the My-TRAC project, we are looking into ways to quantify and incorporate all these factors into route recommendation systems.

Assignment

- Review of literature on the topic of personalized route recommenders: route creation, optimization criteria.
- Develop a route recommender that can extract predefined personalized factors from each route recommendation and match them with personalized factors of a person making the search, thus providing the best personalized recommendation.
- Write a report and possibly a scientific paper.

Information:

- Transport and Planning department
- Thesis supervisor: prof.dr.ir. Hans van Lint OR dr.ir. Niels van Oort
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- Possibility for an industrial internship with NS or another Dutch operator