



## Real-time on-board passenger load prediction for trams

### General description

Public transport operations and control decisions rely on real-time predictions of vehicle movements and passenger flows. It is therefore crucial to develop accurate, reliable and computationally fast methods for generating better predictions of passenger loads. New generation trams are increasingly equipped with a variety of sensors that can potentially allow for estimating the number of passengers on-board the tram and thus facilitate the generation of predictions that will support service provider in their planning and operations, as well as allow to provide real-time load estimates for tram passengers (similarly to the information provided on the NS app).

### Assignment description

In this master graduation project, you will use different data sources in order to be able to deduce the number of people who are currently on-board a tram and predict for the next stops how many will board and alight. This is challenging, because there are no sensors available which are counting the number of travelers in a direct way; you will be using real-time and historical data from the tram vehicles as well as publicly available data such as weather conditions, events, holidays etc.

### Candidate background

T&P or TIL students who have knowledge and interest in public transport planning, have good programming skills, and have affinity with machine learning techniques.

### Research group

Transport & Planning Department, Dr. Oded Cats, [o.cats@tudelft.nl](mailto:o.cats@tudelft.nl)

### External support

The project will be performed in cooperation with Siemens Mobility. Siemens is active in mobility solutions for road and rail. For these activities we support our customers in using infrastructure and rolling stock in an optimal way.