The Analytics and Architecture group at Scania Connected services and Solutions drives the advancement of applied data science and machine learning within connected services. A thesis project in our group is a great opportunity to work with applied machine learning at the forefront of the transport industry and an excellent way of making contacts for your future career. Do you believe in the power of statistical models? Are you intrigued by the combination of map and connected vehicle data? We drive tomorrow, will you?

Background

Scania is one of the world’s leading manufacturer of trucks and buses for heavy transports, as well as industrial and marine engines. Transport services and logistics services make up an increasing part of our business, which guarantees Scania’s customers cost-efficient transport solutions and high availability. Over a million Scania vehicles are in active use, in over 100 countries.

At Connected Services & Solutions we develop new solutions for connected vehicles in our Internet of Things platform, as part of Scania’s increasing focus on communication, services and smart transport solutions. Advanced data analysis capabilities are a cornerstone enabler in this development.

Description

Building models for accurate and reliable predictions of a vehicle’s fuel consumption is a key capability for Scania in the area of connected services and solutions. Fuel consumption prediction requires a rich set of input data to describe the vehicle, its operation and the surrounding environment. Data regarding the vehicle’s configuration and its operation is core business for Scania. But when it comes to describing the surrounding environment, such as the road inclination and road traffic speed, we currently rely on data from external suppliers, which can be both costly and inconvenient for many reasons. This thesis sets out to provide an alternative solution to the modelling of the road network’s effect on the vehicle’s fuel consumption.

The purpose of this thesis is to evaluate if it is possible and useful to estimate the combined effect of latent road features, such as road inclination, congestion at a specific time of day/week, etc. on a vehicles fuel consumption using historical vehicle data.

Assignment

- Develop a fuel consumption index for each road segment in the network based on historical vehicle data. That is, an index describing the relative fuel consumption of a vehicle on the road segment compared to other segments.
- Develop and implement a scalable model for storage and access of the fuel consumption index for all road segments at a global level, so that extraction of data is fast and easy for a series of connected road segments (route).
- Develop and evaluate a predictive fuel model based on the fuel consumption index above.

Applicants

Education: Master’s program in machine learning, data science, computer science or similar. Applicants are expected to have a good understanding of relevant machine learning and data mining methods.

Number of students: 1-2
Start date: January 2019
Estimated time need: 20 weeks

Applicants will be assessed on a continuous basis until the position is filled.