# Air quality recommender system for commuting

Proposed Table of Contents

1. Objective and main goals

The goal of this thesis is to develop a recommender system for air quality while travelling. The thesis will address the variability of measured air quality indicators and exposure both in time and space, e.g. indicating the variation from major roads to smaller roads or from cycling along major roads towards cycling through green cycling tracks.

Data from micro-sensors will be combined with other data as GPS/location data, air quality models, air quality reference stations, etc.

1. Introduction
   1. Air quality and Personal Exposure to air pollution
   2. Monitoring air pollution
      1. Micro-sensors
      2. Air quality models
      3. Data fusion: sensors and air quality models
   3. Mobile tracking for evaluating individual exposure to air pollution
      1. GPS + sensor data (carrying a sensor)
      2. GPS + air quality model data (only carrying a phone)
   4. Route selection on “Google maps” + air quality (if it is possible to extract location data)
2. Methodology.
   1. Merging data from location and air quality models
   2. Computing Individual Exposure over a track
   3. Design of case studies
      1. Major roads vs Smaller roads and pedestrian roads
      2. Cycling in different roads and green tracks
      3. Daily activities: walking to school, go shopping, etc. in different neighborhoods.
      4. Parking workers
3. Results. Case studies
   1. Analysis of the spatial and temporal variation of air quality and exposure in the different case studies.
      1. Major roads vs Smaller roads and pedestrian roads
      2. Cycling in different roads
      3. Daily activities: walking to school, go shopping, etc. in different neighborhoods.
      4. Parking workers
4. Conclusions
5. Future work

Position + time at position

UTM to GPS coords. Conversion tools

Semantic modeling

Eggs – variations in measurements on different heights

* Ruter-tower – Asmta and allergi – Olavs balcony.

R /Python