

# **Research stay at University of Queensland, Australia**

## **Data and model based mapping of cyclists' behaviour with focus on cyclist infrastructure, crowded traffic and road surface**

### **Background for the project**

Municipalities and governments all over the world are increasing their focus on cycling as a solution to traffic, environmental and climate challenges. Copenhagen Municipality expects to invest 1.1 – 1.8 mia. DKK in the period 2017-2015. When prioritizing between different transports solutions, transport models are often used as basis for socioeconomic calculations. However, cycling is still very simplified in most transport models, which means that cycling projects are rarely analysed with standardized socioeconomic analyses. Two leading Danish transport models are Landstrafikmodellen (LTM) and Ørestads Trafikmodel (OTM). LTM do not have an actual model for cyclists' route choice, but in the latest version of OTM there has been more focus on representing cyclists' behaviour.

### **Purpose**

The purpose of the project is to examine how cyclists try to minimise travel time, physical effort and nuisance caused by e.g. crowded traffic and the state of the cyclist path. Especially in Copenhagen, there are many distances where it is very crowded for cyclists. When modelling car traffic it is well known that travel time during crowded traffic is longer than travelling time in free flow, but it is uncertain whether the result for cyclist is similar. Bad road surface also causes bad comfort for cyclists and international investigations indicate that the road surface has an impact on the risk of accidents. However, there are no analyses showing whether bad road surface – and thus increased risk of accidents – influences cyclists' behaviour. This project uses recent progress in data and methods in an advanced model for choosing cycling route taking crowded traffic and the condition of the route into consideration.

### **Method**

The route choice model is based on data from actual cycling tours collected with GPS in connection with a previous project at DTU and a better representation of the cyclist network developed in the latest version of OTM. Alternative ways to include individual delays for the cyclists are investigated and by using the Danish municipalities' standardized division of their roads' condition, we can – by using the model - analyse the importance of the road condition for the cyclists' choice of route.

### **Outcome and social relevance of the research stay**

The formulated route choice model can become part of a transport model which e.g. municipalities can use as a tool to prioritize investments in cycling. Apart from that, the stay will be beneficial for my personal and professional development and help improve the cooperation between DTU and the University of Queensland.