Zahájení studia - 1. říjen 2021
Commencement of Study: 1. October 2021

Ústav / Department: K611

Studijní program: Smart Cities
Study programme: Smart Cities

Školitel / Supervisor:
Prof. Ing. Ondřej Přibyl, Ph.D.

Téma:
Modelování chování rezidentů v chytrých městech

Topic:
Modeling of activity behavior in smart cities

Doktorské téma je dohodnuté
Research topic is agreed with supervisor

Jazyk / Language:
english

Anotace / Abstract:
The topic focuses on modeling of travel behavior using multi-agent systems. This topic belongs to the field of activity-based approach to travel demand analysis. Activity-based modeling treats travel as being derived from the demand for activity participation. The focus is thus not only on modelling traffic, but activity participation of citizens.

MATSim - an open-source framework for implementing large-scale agent-based transport simulations – will be used as a primary tool. MATSim is a microsimulation platform implemented as a Java application. It also adopts the activity-based approach to generate and simulate individuals' activities. Agent stands for the individual travelers, and agent behavior refers to an individual's daily activity travel plan and route choice.

This topic however includes also data preparation, generation of synthetic population and generating daily plans for each citizen / agent. Additionally, so-called “scoring function”, will be researched. When agents execute their plans, the plans are scored according to their economic utility. In the MATSim software, a co-evolutionary algorithm is used to obtain stochastic user equilibrium. The scoring function is needed for the co-evolutionary optimization to model impact of certain policies and decisions.

Literatura / References:


Počet doktorandů / Number of doctoral students: 1

Forma studia: prezenční
Form of study: full-time