DAUSY

Theme: "Identification, modeling, and optimization of a sustainable urban transportation network"

Research theme title:

Identification, modeling, and optimization of a sustainable urban transportation network.

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Hosting University/Research Centre:

Università di Parma, Italy.

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Description:

This research work involves one or more of the following topics:

1. Development of a multi-modal transportation model, that considers mobility demand and describes car, bike, public transportation, and pedestrian traffic.
2. Collection of data on the cycling mobility infrastructure, with the use of a fleet of sensored bikes.
3. Identification of model parameters, based on available data (traffic flow and mobility demand).
4. Optimization of the transportation network, aimed at converting motor traffic into bike traffic.

The work is complementary to the activities of the PNRR ECOSISTER project "Ecosystem for Sustainable Transition in Emilia-Romagna", in Spoke 4 "Smart mobility, housing and energy solutions". The automation and operating research group of the university of Parma (see Aurora Lab, https://aurora.ce.unipr.it/) is currently involved in the activities of this project, in the themes of traffic modeling and network optimization.

As a case study, we will consider the mobility of the city of Parma. We are already in contact with the municipality of Parma to obtain some of the required traffic data.

The developed traffic model will also describe safety and pollution levels for bike routes.

Specific Information:

Applicants must hold a master's degree, preferably in Engineering or Mathematics. A background in system identification, optimization, partial differential equations, or numerical analysis is appreciated. Applicants must be proficient in spoken and written English.

Type of scholarship:

Project funded by PNRR DM118

Study and research period outside the Hosting Institution:

Possible study and research period abroad:

- Period length: 6 months.
- Hosting institution: to be decided.