

Optimization for urban air mobility

Project

In order to overcome multiple challenges (climate change, air pollution, congestion), cities need to rethink their transportation systems. Some recent technological innovations could be included in the solutions portfolio, such as electrification of vehicles fleet, driverless cars or low-altitude air mobility. The chair “*Integrated Urban Mobility*” hosted at LIX-École Polytechnique, works jointly with the Advanced Technology Center of Uber in Paris to analyze the potential of an air mobility service at the intra-city scale. The purpose of the internship is to tackle different operational aspects in air traffic control, such as the optimal trajectories of the new vehicles and collision detection and resolution.

Missions of the intern

The intern will develop mathematical programming models inspired by practical applications in air transport (for instance, optimizing trajectories, detecting singular situations such as potential collisions, combining specific constraints, deciding on the location of safety areas and charging points, etc.). Research topics might intersect nonlinear programming, mixed-integer programming, network optimization and multi-objective optimization.

Profile required

This position is aimed at master students / engineering students with expertise in Operational Research (OR) and good coding skills (experience with OR modeling tools and solvers is also welcome). The candidate is expected to have organizational ease, high motivation and autonomy, and willingness to collaborate in the tasks designated by the researchers and professionals involved in the Chair. Knowledge in the area of air traffic control is an asset.

Application portfolio

- CV
- Courses taken and grades
- Courses being taken on this semester

Practical information

Duration: 6-months

Starting date: from April (flexible)

Location: LIX, École Polytechnique

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