

## **Immediate Graduate Student Position – Designing Autonomous Mobility On-Demand**

### **Future Mobility Lab**

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Future Mobility Lab is a new research lab located in Ariel University, Israel. The lab's areas of research are simulation of shared and automated mobility, activity-based modeling and travel behavior, Big Data and Machine Learning techniques for transportation, and modeling, development and assessment of new technologies in transportation systems. Future Mobility Lab members conduct close international research collaborations with ITS Lab at the Massachusetts Institute of Technology (MIT) and SMART Lab, Singapore.

#### **Project Overview**

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Within the new project titled “**Operating Autonomous Vehicles in Israel: Environmental Costs, Regulations and Future Implications**”, an innovative and comprehensive framework for designing and assessing the impacts on mobility of Autonomous Mobility On-Demand (AMOD) systems and applying it for the Israeli context is being developed.

AMOD systems are demand-responsive mobility services based on a fleet of shared autonomous vehicles, that can be easily accessed (pick-up and drop-off) within an operating area. Such a system can have multiple design and operational configurations, each having very different impacts on transportation and economic systems and on individual choices themselves. To tackle these challenges, an advanced agent-based simulation framework that integrates operational and behavioral models, SimMobility, is used. The main objectives are to create an integrated platform for multiple scenario assessment, to show its full potential for the analysis of innovative autonomous solutions and to give further insights into the benefits and issues when implementing AMOD services in Israel.

#### **Responsibilities**

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The specific responsibilities will involve:

- Contribute to the development and implementation of behavioral and optimization models (e.g. demand generation, tour creation, fleet optimization).
- Work with the research scientists and programmers to turn transport models into working code, involving the design, implementation, and testing of the models and code.
- Solve abstract complex problems/ideas and convert them into useable algorithms/software modules.
- Data preparation and analysis.
- Work with the researchers on publishing research papers.

#### **Requirements**

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- Masters or PhD degree in Transportation, Operations Research, Computer Science or related field.
- General knowledge of Transportation Systems.
- Programming skills
- Knowledge of Python and SQL
- Data analysis and data preparation skills
- Statistics and Modelling skills
- Independent and self-motivated, yet able to work as part of a multidisciplinary team.
- Demonstrated ability to effectively manage concurrent technical tasks with competing priorities.
- Proficient verbal and written communication skills.

Preferential advantages:

- Relevant experience in the transport engineering field.
- Experience using transport simulation software.
- Ability to work with GIS programs especially QGIS

### **To Apply**

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Interested applicants should submit their full CV/resume, cover letter and list of three references to Dr. Bat-hen Nahmias-Biran (bathennb@ariel.ac.il) (to include reference names and contact information). We regret that only shortlisted candidates will be notified.