

Agatha Joumaa

PhD in Applied Mathematics

Contact

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Google Scholar https://scholar.goog (publications) le.com/citations?use r=hNEgNtwAAAAJ&hl

=en&oi=ao

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Conferences and presentations

- Models and Technologies for Intelligent Transportation Systems conference (MT-ITS), Luxembourg, September 2025 (oral presentation)
- EDSFA PhD workshop, Nice, May 2024 (poster)
- The IEEE International Conference on Intelligent Transportation Systems (ITSC), Bilbao, September 2023 (oral presentation)

Awards

- Granted a 100% scholarship to pursue my master's degree at the Lebanese American University
- Ranked first in Akkar Governorate and fourth in North Lebanon in the baccalaureate (18.07/20) by the Ministry of Education and Higher Education (MEHE).

<u>Interests</u>

- Latin and ballroom dancing
- Swimming
- Reading

References

Dr. Giovanni De Nunzio, Research project manager, Thesis supervisor, IFPEn (France) giovanni.de-nunzio@ifpen.fr

Dr. Paola Goatin, Research Director (DR1-Senior Researcher), Thesis director, INRIA (France) paola.goatin@inria.fr

Professional Experience

Nov 2022 - Nov 2025 | Ph.D. researcher

IFP Energies Nouvelles (Solaize 69360) and INRIA (Valbonne 06560)

Subject: Optimization of the environmental performance of urban mobility via macroscopic and multimodal modeling approaches.

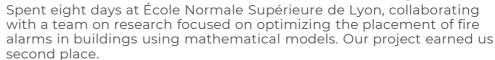
- Developing and implementing a macroscopic multi-class traffic flow model
- Applying optimization algorithms to minimize travel times and emissions
- Designing control strategies for mixed traffic (controlled and uncontrolled vehicles)
- Conducting traffic simulations using MATLAB, calibrating with realworld traffic data and validation using SUMO
- Modeling a real highway using real-time vehicle flow datasets

Aug 2021 - Nov 2022 | Mathematics tutor Rubix Education Center (Beirut, Lebanon)

Teaching students from third grade to university level



Aug 2016 | Research participant MathinFoly summer school, ENS de Lyon (Lyon 69)



Apr - May 2016 | Research participant Trash Treck Challenge-First Lego League (Beirut, Lebanon)

Building and programming a robot with a team of seven people. Presented at the American University of Beirut.



Education

2022 - 2025 | Ph.D. in Applied Mathematics Université Côte d'Azur in partnership with IFP Energies Nouvelles and INRIA

2020 - 2022 | MS in Applied and Computational Mathematics Lebanese American University

GPA: 3.54/4

2017 - 2020 | BS in Pure Mathematics Lebanese University

GPA: 81.58/100 (Passed with high honors)

Skills

Technical Skills

- Modeling and Simulation
- Optimization and Control
- Software and tools (MATLAB, SUMO, MS Office, LaTeX, Gams)
- Data analysis and calibration
- Mathematics and Engineering Foundations (Numerical methods, Finite volume schemes, Partial differential equations)

Languages

• Arabic (Native) • French (Delf B2)

• English (Level C1)

Soft Skills

- Strong analytical and problemsolving skills
- Good communication in multidisciplinary and multicultural teams
- Project management and time management
- Clear technical writing and presentation skills
- Ability to translate theoretical models into real-world applications
- Organization and planification