



Agatha Joumaa

PhD in Applied Mathematics

Contact

08/12/1999

Phone +33(0)7 6376 7176

Email agatha_jou@live.com

LinkedIn www.linkedin.com/in/agatha-joumaa

Google Scholar (publications) <https://scholar.google.com/citations?user=hNEgNtwAAAAJ&hl=en&oi=ao>

ORCID <https://orcid.org/0009-0003-3685-2635>

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).

Interests

- 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 (DRI-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 real-world 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)



Spent eight days at École Normale Supérieure de Lyon, collaborating with a team on research focused on optimizing the placement of fire alarms in buildings using mathematical models. Our project earned us second place.

Apr - May 2016 | Research participant

Trash Trek 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 problem-solving 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