

# MAROUANE FELLOUSSI

☎ +33 4.77.42.93.49 ✉ [marouane.felloussi@uca.fr](mailto:marouane.felloussi@uca.fr)

## EDUCATION

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### LIMOS Research Laboratory

PhD in Operations Research (supervised by *Xavier Delorme & Paolo Gianessi*)

October 2023 - Present

Saint-Étienne, France

- Exact Methods for Energy-Efficient Optimization in Production Systems
  1. A generic branch-and-cut for scheduling problems under energy considerations

### French Civil Aviation University

MSc in Aeronautical Engineering

2019 - 2022

Toulouse, France

- Flight dynamics, air traffic management, aircraft sizing and certification
- Econometrics and forecasting
- Initiation to research

### Paul Sabatier University

Joint degree in Operations Research

Fall 2022

Toulouse, France

- Basics in continuous, discrete & stochastic optimization
- Decision tools for Air Traffic Management

## WORK EXPERIENCE

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### Capgemini Engineering R&D

Scientific Software Engineer

October 2022 - September 2023

Toulouse, France

- Development of an optimized and centralized software for water production plants
  - \* Development, deployment and improvement of a MILP model
  - \* Code maintenance and continuous integration of new features and business constraints
  - \* Drafting design documents, organizing customer workshops and on-site installation

### Capgemini Engineering R&D

Research intern (supervised by *Isabelle Mirouze & Sonia Cafieri*)

March 2022 - August 2022

Toulouse, France

- MILP models for Water Production Scheduling
  - \* Literature review of the industrial problem
  - \* Problem formulation for each facility and each level of operation
  - \* Valid inequalities, heuristics, parameter tuning

### Labo Aéro - ENAC

Research intern (supervised by *Thierry Klein & Nicolas Peteilh*)

Fall 2020 & Summer 2021

Toulouse, France

- Global Sensitivity Analysis for optimized aircraft design
  - \* Development of sensitivity analysis methods tailored to flight performance simulation libraries
  - \* Implementation of Sobol' & Cramér-Von-Mises indices with an application to Top-Level Aircraft Requirements.

## SKILLS

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<b>Technical Skills</b>	Programming (Python, Julia, C++), GAMS/AMPL, ML-tools, Git
<b>Soft Skills</b>	Curious and analytical mindset Autonomy, dedication, competitiveness
<b>Languages</b>	Bilingual Proficiency : Arabic, English, French

## RESEARCH INTERESTS

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<b>Research</b>	mixed integer programming, column generation, cutting planes ML for discrete optimization
<b>Applications</b>	scheduling and balancing problems production planning