

# Youssef MILED

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## EDUCATION

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### Ecole Centrale de Lyon

General Engineering

2023 - Present

GPA : 3.95/4.0. *Computer Science Coursework* : Algorithms and Data Structures, Web Programming, Object-Oriented Programming, Data Analysis and Pattern Recognition. *Mathematics Coursework*: Numerical Analysis, Applied Analysis, Optimization, Probability and Statistics, Regression. *General Engineering*: Electronic Systems, Linear Control, Physics, Materials Science, Energy

### Lycée Champollion

CPGE MP2I-MPI

2021 - 2023

(1st/46). *Computer Science Coursework*: Theory, C and OCaml Programming, Advanced Algorithms and Data Structures, Concurrency, Game Theory, Machine Learning, Decidability, Automata, Language and Context-free grammars, Databases. *Mathematics Coursework* : Combinatorics, Algebra, Linear Algebra, Optimization, Topology, Euclidian and Hermitian Spaces, Probability, Discret Mathematics, Multivariable/Differential Calculus. *Physics Coursework* : Quantum Mechanics, Logic Electronics.

## TECHNICAL SKILLS

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Programming & Tools	C, OCaml, Python, MATLAB, SQL, JS, HTML, CSS, Android Studio, Numpy, TensorFlow Scikit-Learn, Pandas, Yfinance, Pygame, Pytorch, Jupyter Notebook, Visual Studio Code, Git, LaTeX
Language	English: <i>Fluent</i> , French: <i>Fluent</i> , Arabic: <i>Native Language</i> , Spanish: <i>Professional working proficiency</i> , Mandarin: <i>Basic proficiency</i>

## RESEARCH EXPERIENCE

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### Machine Learning

September 2024 - April 2025

*Ecole Centrale Lyon*

### Formal methods: Implementing a type system for secure information flow

2021 - 2023

*Lycée Champollion*

Developed and implemented a type system for a simple programming language in OCaml. Extended Geoffrey Smith's type system and its semantics to include function handling. Proved the noninterference property (for secure information flow) in the extended type system. Implemented a representation of formal proofs as n-ary trees for codes in this programming language. Implemented a type checker to verify the correctness of these proof trees.

## PROJECTS

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### Mobile app for classroom learning assistance

September 2023 - June 2024

*Ecole Centrale de Lyon*

Project leader of a team of 6 students developing a classroom learning assistance application using Android Studio. Utilization of text processing algorithms to provide feedback on student note-taking. Developed two interfaces where the teacher gets insights into the students' mistakes or lack of focus, and the students receive evaluations of their own work.

### Weex - Week of Engineering Experience

March 2024

*Ecole Centrale de Lyon*

Worked in a group of 12 on a project aimed at quantifying polluting gases emissions for sites of a fictitious enterprise. Utilisation of MATLAB to parse datasets and simulate gas propagation after developing equations based on a fluid mechanics model.

## TEACHING

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### Teaching Assistant

September 2024 - Present

*Lycée Aux Lazaristes*

Teaching assistant and oral examiner in mathematics for first-year preparatory class students. Preparation of students for the competitive exams to enter the top-tier engineering schools in France (French 'Grandes Ecoles').  
*Teaching:* Real Analysis, Complex numbers, Differential equations, Calculus, Arithmetic, Polynoms, Algebraic structures, Linear Algebra, Combinatorics, Probability.

### Private Tutor

November 2023 - Present

*Complétude*

Tutor in mathematics and physics for students in high school and university. Helped a student get admitted in the MP2I preparatory classes for the French 'Grandes Ecoles'.

## COMMUNITY SERVICE

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### Software Programmer

January 2024 - Present

*Eclair*

Developer at Eclair, an association dedicated to advancing the connectivity experiences of Centrale Lyon students. Contributed to the development of MyECL, the application for Centrale Lyon students.

### IT Manager

February 2023 - Present

*Centrale Lyon Conseil*

In the Information Systems pole, responsible for overseeing data management and website administration as a member of Centrale Lyon Conseil Junior Enterprise, a student-run association that operates similarly to a consulting firm in IT, engineering and market studies. The clients include *Decathlon*, *Renault*, *Schneider Electric*. Migrated to *ERPNext* for customer relationship management and intern management.

## INTERESTS

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Formal methods, program verification, machine learning, machine-checked proofs, programming languages and semantics, interdisciplinary scientific problems.