# Nicolas Lafaille

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## Education

- **CentraleSupélec - Université Paris-Saclay** *September 2023 - June 2026*
  *Bachelor and Master of Engineering - BEng & MEng* Paris, France
  - GPA: 4.19/4.33 : top 5% of the class out of 970 students
  - Relevant Coursework :
    - Machine Learning, Artificial Intelligence, Statistics and Learning, Algorithmic and Complexity.
    - Optimization, Convergence, Integration and Probabilities, Partial Differential Equations, Modeling and Automatic Control, Signal Processing.

- **CPGE Lycée Henri-Poincaré** *September 2021 - June 2023*
  *CPGE - MPSI & MP** Nancy, France
  - Relevant Coursework : Programming, Data Structures, Graph theory, Algebra, Calculus, Topology, Probabilities, Mechanics, Electromagnetism, Quantum physics.

## Work Experience

- **Machine Learning Researcher Intern** *July 2025 - December 2025*
  *Thales - CortAIx Labs* Paris, France
  - Designed a Deep Reinforcement Learning pipeline and a custom simulator to optimize resource allocation and decision making in quantum key distribution networks.
  - Researched and developed Graph Neural Network architectures, enhancing scalability for dynamic and large topologies.

## Projects

- **Radiance field rendering architectures (NERFs) applied to industrial parts** *February 2025 - June 2025*
  *In collaboration with **SafranTech*** Paris, France
  - Explored neural radiance field rendering models (NERFs) to recreate new views of industrial parts and to compute depth maps of industrial parts.

- **Incremental learning applied to time series forcasting** *February 2024 - February 2025*
  *In collaboration with **MICS Laboratory - CentraleSupélec*** Paris, France
  - Implemented from scratch and tuned online learning algorithms (FTRL, VB-FTRL) in Python using NumPy.
  - Modeled the Financial Markets using statistical models such as GARCH and ARIMA to experiment with the online learning models.

- **Reinforcement Learning for Quadcopter Control**
  - Designed a custom environment based on the MuJoCo physics engine to model real life dynamics of a quadcopter.
  - Leveraged Proximity Policy Optimization to train a quadcopter agent to navigate based on given target positions and to follow complex path between checkpoints.

## Volunteering

- **Hagir** *October 2024 - June 2025*
  *Volunteer teacher* Paris, France
  - Volunteered to help a disabled student with his studies by giving weekly classes in Mathematics and Computer Science.

## Skills

- Programming languages: OCaml, Python (NumPy, Pandas, PyTorch, SciPy), Matlab, LaTeX, Git
- Languages: English (C1), French (native language), Spanish (B1).