

# Maxime NICAISE

👤 22 years    🌐 [nicaisemarseille.github.io](https://nicaisemarseille.github.io)    ✉ [maxime.nicaise@student-cs.fr](mailto:maxime.nicaise@student-cs.fr)    ☎ +33-6-64-11-31-77

## Education

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**MSc in Mathematical Engineering - CentraleSupélec, Université Paris-Saclay** *Sep. 2023 – Aug. 2027*  
4 years

*CentraleSupélec, Paris, France*

- French Grande École, admitted after national competitive examination. Currently on a Gap Year (2025–2026) for research and industry internships.
- Machine Learning, Optimization, Measure Theory, Probability, Statistics, Functional Analysis, Partial Differential Equations, Control Theory, Signal Processing, Algorithmics.

**Preparatory Classes to Grandes Écoles - Lycée international de Valbonne** *Sep. 2021 – Jul. 2023*  
2 years

*Lycée International de Valbonne, Valbonne, France*

- Intensive undergraduate training program in mathematics, computer science, and physics for the national competitive entrance exams to French engineering grandes écoles.

## Research Experience

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**Research Internship in Optimal Transport** *Sep. 2025 – Feb. 2026*  
6 months

*INRIA, Sophia-Antipolis, France*

- Supervised by Dr. Samir Perlaza.
- Established theoretical equivalence between  $f$ -divergence-regularization schemes for optimal transport. Results accepted at IEEE ISIT 2026 and extended into a journal submission to Information and Inference (conference preprint: [arXiv:2604.12996](https://arxiv.org/abs/2604.12996) and research report: [hal-05454647](https://hal.archives-ouvertes.fr/hal-05454647)).
- Designed and implemented a stabilized Sinkhorn-type algorithm for semi-relaxed regularized optimal transport. Established strong theoretical convergence guarantees with explicit linear rates, supported by experimental results (research report: [hal-05635975](https://hal.archives-ouvertes.fr/hal-05635975) and code: [GitHub](https://github.com)).
- Served as a reviewer for IEEE ISIT 2026 conference via EDAS.

**Research Project in Functional Analysis & PDEs** *Jan. 2024 – Jun. 2025*  
18 months

*CentraleSupélec, Paris, France*

- Supervised by Prof. Anna Rozanova-Pierrat.
- Studied topics in functional analysis and partial differential equations, focusing on the extension of classical results to domains with weaker regularity assumptions.

## Teaching Experience

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**Mathematics Teaching Assistant** *Sep. 2024 – Feb. 2025*  
7 months

*CentraleSupélec, Paris, France*

- Designing and conducting weekly 2-hour reinforcement tutorials in probability and partial differential equations for third-year undergraduate students at CentraleSupélec.

**Mathematics Oral Examiner (Colleur) - CPGE** *Sep. 2025 – Feb. 2026*  
6 months

*Lycée International de Valbonne, Valbonne, France*

- Mathematics oral examiner for classes préparatoires MPI/MPI\* and PC, conducting weekly oral examinations and providing feedback on problem-solving and mathematical reasoning.

## Applied / Industry Experience

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**Data Science & ML Internship** *Feb. 2026 – Aug. 2026*  
6 months

*Hypertrade, Bangkok, Thailand*

- Investigated retail sales forecasting and prepared an LLM-based analytics agent integrating database queries and predictive ML models on real-world client data.

## Skills

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**Programming:** Python (PyTorch, NumPy, Pandas, SciPy, POT, scikit-learn, LightGBM, statsmodels), OCaml, R, C,  $\LaTeX$ , MATLAB, SQL.

**Languages:** French (native), English (proficient), Spanish (intermediate), Thai (Conversational).