

Oussama Zekri

M2 MVA Student

"Normalien" Student Researcher

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EXPERIENCE

• Huawei AI Research

Mar 2024 - present

Research Intern. Supervisor : Dr. Ievgen Redko

Paris, France

- Large Language Models as Markov chains. [Preprint link](#), submitted to a top-tier ML conference.
- Zero-shot MBRL using LLMs. [Preprint link](#), submitted to a top-tier ML conference.
- LLMs learn SGD In-Context. [Workshop paper](#) accepted at ICML 2024, top 6 paper out of over 50 submissions.

• System Optimization Laboratory, University of Kyoto

Apr 2023 - Jul 2023

Research Intern. Supervisors : Dr. Ellen Hidemi Fukuda & Dr. Bruno Figueira Lourenço.

Kyoto, Japan

- Subject : Convergence analysis under consistent error bounds.
- New contributions to convex optimization. [A journal paper](#) is currently being previewed.

• Centre Borelli, ENS Paris-Saclay

Mar 2022 - Jul 2022

Research Intern. Supervisors : Dr Laurent Oudre & Thibaut Germain.

Gif-sur-Yvette, France

- Subject : Similarity measures between time series inspired by optimal transport.
- Creation of tools for identification of spatio-temporal similarities, trained on real data from rehabilitation patients.

EDUCATION

• ENS Paris-Saclay, Gif-sur-Yvette

Sep 2023 - Present

Master's Degree, M2 MVA, Mathematics and Applications

- Courses in Europe's leading MsC in ML, taught by top-level researchers.
- Relevant coursework : Statistical learning, Optimal Transport, Convex optimization, Distributed and Large-Scale Computing Optimization, Kernel Methods, Deep Learning in Practice...

• Ecole Polytechnique, ENS & Univ. Paris-Saclay, Palaiseau

Sep 2021 - Aug 2023

Master's Degree, Pure & Applied Mathematics.

- Mathematics courses of a very high standard, which enabled me to acquire solid skills.
- Relevant coursework : Functional Analysis, Optimization and Numerical Optimization, Advanced Probabilities, Statistics, Learning and Stochastic Simulation...

• CPGE Lycée Thiers, Marseille

Sep 2018 - Aug 2021

Bachelor of Science, Mathematics & Physics, PCSI-PSI*

- Advanced undergraduate courses leading to entrance exams for France's leading Scientific and Engineering schools.

TEACHING AND JURY ACTIVITIES

• HEC Paris

2024

Jury member in Mathematics

Jouy-en-Josas, France

- Member of the jury for the mathematics entrance examination to France's most selective business school.
- Written and oral examination of candidates.

• Lycée Louis-Le-Grand, Lycée Turgot

Sep 2022 - Present

Teaching Assistant & Oral Examiner in Mathematics

Paris, France

- Courses and oral examinations "Khôlles" given to students in French "Classes Prépas".

PROJECTS

- **Optimal Transport** : JAX implementation and development of new ideas on the paper *Learning costs from structured Monge Displacements*, M. Klein et al., advised by Prof. Gabriel Peyré.
- **PET Metabolic Imaging** : Working in pairs with the nuclear medicine physicians Arnaud Berenbaum and Florent Besson. Fine-tuning the very recent SSM model *U-Mamba*, for PET automatic segmentation.
- **Convolutional Kernel Network** : From-scratch implementation, in Python and CUDA, of the CKN architecture introduced by Dr. Julien Mairal in *End-to-End Kernel Learning with Supervised CKN*, J. Mairal. [Blogpost here](#).

AWARDS & GRANTS

- **Grant and title** : 4-year grant (~ 63k €), as a reward for my admission to the ENS and obtaining the grade of trainee civil servant.
- **Academic achievement** : Ranked in the top 200 out of more than 8,000 candidates for the ENS entrance exam (top 2.5%).

SKILLS & LANGUAGE

- **Code** : Proficient in Python, Latex, PyTorch, TikZ...
- **Languages** : French (native), English (Cambridge CAE C1 certificate), Spanish (intermediate), Japanese (basics).