Oussama Zekri

ENS Paris-Saclay, France
"Normalien" Student Researcher
4th year

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EXPERIENCE

• Department of Statistics, University of Washington

Research Intern. Supervisor: Pr. Zaid Harchaoui

Feb 2025 - Jul 2025 Seattle, USA

• Department of Mathematics, Imperial College London

Research Intern. Supervisor : Dr. Nicolas Boullé

Nov 2024 - Jan 2025 London, UK

- Fine-Tuning Discrete Diffusion Models with Policy Gradient Methods. Preprint link, submitted.

• Huawei AI Research

Mar 2024 - Sep 2024

Paris, France

Research Intern. Supervisor: Dr. Ievgen Redko

- Large Language Models as Markov chains. Preprint link, submitted.

- Zero-shot MBRL using LLMs. Paper link, accepted at ICLR 2025.
- 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 reviewed.

Centre Borelli, ENS Paris-Saclay

Mar 2022 - Jul 2022 Gif-sur-Yvette, France

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

- 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 - Aug 2024

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 Paris-Saclay, Palaiseau

Sep 2022 - Aug 2023

Master's Degree, M1 Hadamard, 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...

• ENS Paris-Saclay, Gif-sur-Yvette

Sep 2021 - Aug 2025

Normalien élève Diploma.

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 Assitant & Oral Examiner in Mathematics

Paris, France

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

PROJECTS

- Research Blog: Maintaining logB, with my friend Ambroise Odonnat. ≈ 100 subscribers on our mailing list.
- **PET Metabolic Imaging :** Working in pairs with the nuclear medicine physicians. 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).