

Damien Lesens

PHD STUDENT

ENS de Lyon, Lyon, France

+33 7 85 99 11 98 | [✉ damien.lesens@ens-lyon.fr](mailto:damien.lesens@ens-lyon.fr) | [🏠 https://damienlesens.github.io/](https://damienlesens.github.io/) | [📄 https://github.com/DamienLesens](https://github.com/DamienLesens)

Education

ENS de Lyon

Lyon

PHD COMPUTER SCIENCE

2025 - present

- Advisors: Bora Uçar and Jérémy E. Cohen
- Grant: Contrat Doctoral Spécifique Normalien (CDSN), for 3 years
- Subject: "Non-negative matrix factorization with KL loss for large sparse data"

ENS de Lyon & MILA/Université de Montréal

Lyon & Montréal

"LONG RESEARCH PROJECT", PROJECT LONG DE RECHERCHE IN FRENCH (PLR)

2024-2025

- First internship: 3 months at ENS de Lyon
- Second internship: 5 months at MILA/Université de Montréal

ENS de Lyon

Lyon

MASTER COMPUTER SCIENCE

2022 - 2024

- First year: average grade 17,42/20 and 19/20 at research internship
- Second year: average grade 18,89/20 and 20/20 at research internship

ENS de Lyon

Lyon

3RD YEAR BACHELOR COMPUTER SCIENCE

2021 - 2022

- Accepted as payed student
- 1st in year group with average grade 17,42/20 and 18/20 at research internship

Lycee GENERAL SAINT-LOUIS

Paris 6e

CPGE

2019 - 2021

- Preparation for Grandes Ecoles competition in MPSI class then MP* Computer Science option

Research Experience

MILA/Université de Montréal

Montréal, Canada

SUPERVISOR: GUILLAUME RABUSSEAU

Feb. - July 2025

- "SVD based methods to reduce the memory cost of KV caching in transformers"
- paper accepted at AISTATS26 (poster)

ENS de Lyon, LIP, ROMA team

Lyon, France

SUPERVISORS: BORA UÇAR AND JÉRÉMY E. COHEN

Oct. 2024 - Jan. 2025

- "Birkhoff-like decomposition of symmetric matrices"
- paper published in SIAM Journal on Matrix Analysis and Applications

ENS de Lyon, LIP, ROMA team

Lyon, France

SUPERVISORS: BORA UÇAR AND JÉRÉMY E. COHEN

Feb. - July 2024

- Master second year internship
- "Greedy algorithms for computing the Birkhoff decomposition"
- paper accepted at EUSIPCO 2024 (oral)
- Produced a 20 pages report and gave a 20 minutes presentation at ENS Lyon, graded 20/20

TU-Darmstadt, Parallel Programming team

Darmstadt, Germany

SUPERVISORS: FABIAN CZAPPA AND FELIX WOLF

May - July 2024

- Project: high performance computing for brain simulations
- Produced a 20 pages report and gave a 20 minutes presentation at ENS Lyon, graded 19/20

- Project: distributed certification of graph properties
- Produced a 20 pages report and gave a 20 minutes presentation at ENS Lyon, graded 18/20

Publications

list of my publications here: <https://scholar.google.com/citations?user=3FZ6S20AAAAJ>

PUBLISHED

Lesens, D., Rakhshan, B. T., Rabusseau, G. KQ-SVD: Compressing the KV Cache with Provable Guarantees on Attention Fidelity. In The 29th International Conference on Artificial Intelligence and Statistics.

Lesens, D., Cohen, J. E., Uçar, B. (2025). Algorithms for symmetric Birkhoff-von Neumann decomposition of symmetric doubly stochastic matrices. *SIAM Journal on Matrix Analysis and Applications*, 1-30.

Lesens, D., Cohen, J. E., Uçar, B. (2024, August). Orthogonal matching pursuit-based algorithms for the Birkhoff-von Neumann decomposition. In 2024 32nd European Signal Processing Conference (EUSIPCO) (pp. 2457-2461). IEEE.

Presentations

CONFERENCE

Presented the paper "Orthogonal matching pursuit-based algorithms for the Birkhoff-von Neumann decomposition" I co-authored with Jérémy E. Cohen and Bora Uçar at EUSIPCO 2024

WORKSHOP

Presented my Master 2 internship work at the 17th Scheduling for large-scale systems workshop, Aussois, France, June 24 - 27, 2024, <https://graal.ens-lyon.fr/~abenoit/aussois24/>

Presented my PLR work at the 18th Scheduling for large-scale systems workshop École de Technologie Supérieure, Montréal, Québec, Canada, July 8-10, 2025, <https://perso.ens-lyon.fr/loris.marchal/scheduling-in-montreal/>

Teaching Experience

more details on my teaching experiences here: <https://damienlesens.github.io/teaching/>

2025-2026 **Bachelor Algorithm class**, Teaching Assistant

ENS de Lyon

2025-2026 **Master 1 Optimization class**, Teaching Assistant

ENS de Lyon

Community service

TFJM² (French tournament for young mathematicians)

Lyon

ORGANIZER AND JURY

2024

Skills

Programming: Python, C++, C, Java, Ocaml, \LaTeX , Markdown

Programming contests:

Oct. 2022 **32/+1000 in "Le Shaker" contest**,

Feb. 2023 **ranked 45/120 at SWERC Milano**,

as of 2026 **Rating 1471 (specialist) on Codeforces**,

Languages: French (native), English C2 (Cambridge Advanced certification in 2022), German B1 (basics)