Waïss Azizian — PhD student

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- *PhD student in optimization for machine learning in Grenoble, France.*
- *Current interests: stochastic and nonconvex optimization, robust optimization.*
- *Graduation date: December 2025*

Research experience

Laboratoire Jean Kuntzmann — **Grenoble, France**
PhD, under the supervision of F. Iutzeler, J. Malick, P. Mertikopoulos — *March 2022 - Current*
Robust min-max optimization for learning

Research internship — *April- September 2021*
Wasserstein distributionally robust optimization for safer learning

Research internship — *May- July 2020*
Single-call extragradient methods for stochastic variational inequalities

INRIA — **Paris, France**
Research internship, under the supervision of Marc Lelarge — *November 2021 - February 2022*
Online parameter estimation in state-space models

Mila — **Montréal, Québec, Canada**
Research internship, under the supervision of Simon Lacoste-Julien — *March - July 2019*
Smooth game optimization for machine learning

Education

École Normale Supérieure Paris-Saclay — **Saclay, France**
Master in Machine learning "Mathematics, Vision, Learning" (MVA) — *2020 - 2021*
Obtained with highest honors

École Normale Supérieure de Paris — **Paris, France**
First year of Master (M.Sc.) in Mathematics — *2019 - 2020*

First year of Master (M.Sc.) in Computer Science — *2018 - 2019*

Licences (B.Sc.) in both Computer Science and Mathematics — *2017 - 2018*

Software

- Proficency in Python, Numpy, PyTorch and Jax
- Academic experience in C, C++, OCaml, Julia
- Tools: Git, LaTeX, Linux

Teaching

- Numerical Optimization (1^{st} year of Master, 2022-23 and 2023-24): exercise and practical sessions.
- Statistical Methods for Biology (2^{nd} year of Bachelor, 2023-24 and 2024-25): teaching and exercise sessions.

Other responsabilities

- January 2023 - current: organization of the team's seminar.
- May - July 2023: co-supervision of an intern on *Wasserstein Distributionally Robust Portfolio Optimization*.

Publications

W. Azizian, D. Scieur, I. Mitliagkas, S. Lacoste-Julien, and G. Gidel, "Accelerating smooth games by manipulating spectral shapes," in *AISTATS*, 2020.

W. Azizian, I. Mitliagkas, S. Lacoste-Julien, and G. Gidel, "A tight and unified analysis of gradient-based methods for a whole spectrum of differentiable games," in *AISTATS*, 2020.

W. Azizian and M. Lelarge, "Expressive power of invariant and equivariant graph neural networks," in *ICLR*, 2021.

W. Azizian, F. Iutzeler, J. Malick, and P. Mertikopoulos, "The last-iterate convergence rate of optimistic mirror descent in stochastic variational inequalities," in *COLT*, 2021.

W. Azizian, F. Iutzeler, and J. Malick, "Regularization for Wasserstein Distributionally Robust Optimization," *ESAIM: Control, Optimisation and Calculus of Variations*, 2023.

——, "Exact Generalization Guarantees for (Regularized) Wasserstein Distributionally Robust Models," in *NeurIPS*, 2023.

W. Azizian, F. Iutzeler, J. Malick, and P. Mertikopoulos, "What is the Long-Run Distribution of Stochastic Gradient Descent? A Large Deviations Analysis," in *ICML*, 2024.

——, "The rate of convergence of bregman proximal methods: Local geometry versus regularity versus sharpness," *SIAM Journal on Optimization*, 2024.