Yassine Nabou, Ph.D.

yassine.nabou@helsinki.fi Yassine-nabou Homepage
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Education

11/2020 – 05/2024 **Ph.D. Automatic Control and Systems Engineering, National University of Science and Technology Polytechnic Bucharest, Romania.**
Marie Skłodowska-Curie Fellow, TraDE-OPT project, as ESR 10 (EU training network in optimization & data science).
Thesis title: *Efficient higher-order methods for composite problems with applications.*
Supervisor: Ion Necoara

2016 – 2018 **M.Sc. Mathematics and Computer Science, Faculty of Science and Technology Settat, University Hassan I, Morocco.**

2012 – 2016 **BSc. Mathematics and Computer Science, Faculty of Science Semlalia Marrakech, Cadi Ayyad University, Morocco.**

Research Mobilities

11/2024 - present **Postdoctoral researcher,** university of Helsinki, Finland.
I am currently hosted by *Tuomo Valkonen*, working on online optimization, federated learning.

11/2023 - 12/2023 **Visiting Researcher (online),** N-SIDE, Belgium.
I was collaborating with Mehdi Madani and Pierre Artoisenet to benchmark optimization techniques for solving the steady-state power flow equations, focusing on the European high voltage transmission network.

04/2022 - 07/2022 **Visiting Researcher,** Université catholique de Louvain, Belgium.
I was a visiting researcher working under the supervision of François Glineur on inexact first order methods for nonconvex optimization problems.

09/2021 - 11/2022 **Visiting Researcher (online),** Università degli Studi di Genova, Italy.
I was collaborating with Silvia Villa to develop higher-order methods for structured nonconvex optimization problems.

12/2018 - 12/2019 **Visiting Researcher,** Toulouse Mathematics Institute, France.
I was invited by Pierre Maréchal working on inverse problems, variations inequalities and convex optimization.

Research Publications

Journal Articles and Preprints

1. Y. **Nabou**, L. E. Bourkhisi, S. U. Stich, and T. Valkonen, "Monotone and nonmonotone linearized block coordinate descent methods for nonsmooth composite optimization problems," 2025, arxiv.
2. Y. **Nabou**, "Nonmonotone higher-order taylor approximation methods for composite problems," *arXiv preprint arXiv:2503.01182*, 2025.

3. Y. **Nabou** and I. Necoara, "Regularized higher-order taylor approximation methods for nonlinear least-squares," *arXiv:2503.02370*, 2025, Under review at SIAM Journal on Optimization (first round).
4. Y. **Nabou** and I. Necoara, "Moving higher-order taylor approximations method for smooth constrained minimization problems," *SIAM Journal on Optimization (Accepted)*, 2024, arXiv:2402.15022.
5. Y. **Nabou** and I. Necoara, "Efficiency of higher-order algorithms for minimizing composite functions," *Computational Optimization and Applications*, vol. 87, no. 2, pp. 441–473, 2024.
6. Y. **Nabou**, F. Glineur, and I. Necoara, "Proximal gradient methods with inexact oracle of degree q for composite optimization," *Optimization Letters*, vol. 19, no. 2, pp. 285–306, 2025.
7. Y. **Nabou** and T. Valkonen, "Dynamic inverse problems: Regularisation theory and online methods," 2026, To appear soon.

Conference Proceedings

1. Y. **Nabou**, L. Toma, and I. Necoara, "Modified projected gauss-newton method for constrained nonlinear least-squares: Application to power flow analysis," in *2023 European Control Conference (ECC)*, IEEE, 2023, pp. 1–6.

Talks and Conferences

06/2025 **Nonmonotone linearized block coordinate descent methods for nonsmooth composite problems,** EUROPT 2025, Southampton, UK.

10/2024 **Higher-Order Methods for Composite Optimization with Application,** MOP Research Seminar, Saarland University, Germany (online).

09/2024 **Efficient Algorithms for Composite Problems with Applications,** ESAT KU Leuven, Belgium, invited by Hakan Ergun (online).

01/2024 **Moving Higher-Order Taylor Approximations Method for Smooth Constrained Minimization Problems,** Workshop on Analysis and Potential, Bucharest, Romania.

09/2023 **Moving Higher-Order Taylor Approximations Method for Smooth Constrained Minimization Problems,** Conference on Statistical Modeling with Applications, Bucharest, Romania.

06/2023 **Modified Projected Gauss-Newton Method for Constrained Nonlinear Least-Squares: Application to Power Flow Analysis,** European Control Conference (ECC23), Bucharest, Romania.

07/2022 **Efficient Optimization Methods for Complex Systems,** Workshop on Algorithmic and Continuous Optimization, UCLouvain, Belgium.

08/2021 **Higher-Order Algorithms for Composite Minimization Problems,** MaLGa Machine Learning Genoa Center, Italy, invited by Silvia Villa (online).

Skills

Languages — English (fluent), French (fluent), Arabic (native).

Technical Skills — Julia, Python (NumPy, SciPy, PyTorch), MATLAB, LaTeX; JuMP, CVXPY, IPOPT.

Miscellaneous Experience

Academic Service

June 13–16, 2023 — **European Control Conference**, Bucharest, Romania.
Co-organized a session titled: *Recent Advances in Data-Driven Optimization and Applications*.

Journal/Conference Reviews: Mathematical Programming, IEEE Transactions on Automatic Control, Computational Optimization and Applications.

Teaching experience

Spring 2026 (upcoming) — Appointed to teach **MAT11015**: Basics of Mathematics in Machine Learning II, University of Helsinki.

Spring 2025 — **MAT11015** Course Assistant – *Basics of Mathematics in Machine Learning II (MAT11015)*. Supported labs, evaluated assignments, and assisted students in core Machine learning and optimization concepts.