Nikita Doikov

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Residence: Switzerland, Lausanne

RESEARCH INTERESTS

Optimization, Computational Mathematics, Statistics, Machine Learning, Algorithmic Foundations of AI

EDUCATION

PhD, UCLouvain, Belgium   2021
Thesis: "New second-order and tensor methods in Convex Optimization"
Supervisor: Yurii Nesterov

MSc, Higher School of Economics, Russia, GPA – 9.3/10.0   2017
Faculty of Computer Science

BSc, Lomonosov Moscow State University, Russia, GPA – 4.9/5.0   2015
Faculty of Computational Mathematics and Cybernetics

WORK EXPERIENCE

Postdoctoral Researcher at **EPFL**, Switzerland   09.2022 – now
Machine Learning and Optimization Laboratory, hosted by Martin Jaggi

Postdoctoral Researcher at **UCLouvain**, Belgium   09.2021 – 08.2022
ICTEAM / CORE, hosted by Yurii Nesterov

Intern at **Google**, Switzerland   Summer 2018

Seminar Teacher at **HSE**, Russia   Spring 2016, 2017

Intern at **Google**, Switzerland   Summer 2016

Software Engineer at **Yandex**, Russia   2015

TEACHING AND MENTORING

Overall, I have taught over 350 students in the following courses:

- Optimization Methods at Faculty of CS, HSE (seminar sessions)   2017, 2018
- Bayesian Methods in Machine Learning at HSE (teacher assistant)   2017, 2018, 2019
- Optimization models and methods II at UCLouvain (seminar sessions)   2021

Led more than 15 intern, MSc and PhD student research projects

TECHNICAL SKILLS

Advanced: Algorithms and Data Structures, Optimization and Numerical Methods, Machine Learning

Technologies: C++, Python, Matlab, R, SQL, Intel Assembler, UNIX OS architecture, MapReduce, Flume, TensorFlow, PyTorch, JAX

Languages: English (fluent), French (basic), Russian (native)

ACADEMIC SERVICE

Conference reviews: ICML, NeurIPS, COLT, SODA

Journal reviews: Mathematical Programming, SIAM Journal on Optimization, SIAM Journal on Scientific Computing, Journal of Optimization Theory and Applications, Journal of Global Optimization, IMA Journal of Numerical Analysis, Computational Optimization and Applications, Optimization Methods and Software, IEEE Transactions on Information Theory

Symposium organization: *Optimization Methods with Worst-Case Complexity Guarantees* at FGS-2024 conference in Spain with Geovani Nunes Grapiglia

PUBLICATIONS

More than 20 papers published in the leading peer-reviewed journals and conferences on Mathematical Optimization, Statistics, Machine Learning, and AI

Selected Refereed Publications:

Minimizing Quasi-Self-Concordant Functions by Gradient Regularization of Newton Method,
N. Doikov, Mathematical Programming Journal
2025

Lower Complexity Bounds for Minimizing Regularized Functions
N. Doikov, Optimization Letters Journal
2025

Spectral Preconditioning for Gradient Methods on Graded Non-convex Functions,
N. Doikov, S.U. Stich, and M. Jaggi, ICML
2024

Second-order optimization with lazy Hessians,
N. Doikov, E.M. Chayti, and M. Jaggi, ICML (**Oral Presentation**)
2023

Convex optimization based on global lower second-order models,
N. Doikov and Yu. Nesterov, NeurIPS (**Oral Presentation**)
2020

Contracting Proximal Methods for Smooth Convex Optimization,
N. Doikov and Yu. Nesterov, SIAM Journal on Optimization
2020

All papers are available on: doikov.com or Google Scholar

INVITED TALKS, CONFERENCES, AND SCHOOLS

- International Conference on Artificial Intelligence and Statistics (AISTATS), Phuket, 2025
- Weierstrass Institute (WIAS), research seminar, Berlin, 2024
- CISPA Helmholtz Center, research seminar, Saarbrücken, 2024
- ETH AI Center, research seminar of Optimization & Decision Intelligence Group, Zurich, 2024
- Research seminar of Optimization of Machine Learning Systems Group, University of Basel, 2024
- Research seminar of Inria centre at the University Grenoble Alpes, 2024
- Workshop on Algorithmic Optimization, Louvain, 2024
- International Conference on Machine Learning (ICML), Vienna, 2024
- European Conference on Operational Research (EURO), Copenhagen, 2024
- 21st Conference on Advances in Continuous Optimization (EUROPT), Lund, 2024
- French-German-Spanish conference on Optimization (FGS), Gijón, 2024
- Workshop on Nonsmooth Optimization and Applications (NOPTA), Antwerp, 2024
- 20th Workshop on Advances in Continuous Optimization (EUROPT), Budapest, 2023
- International Conference on Machine Learning (ICML), Hawaii, 2023
- SIAM Conference on Optimization (OP23), Seattle, 2023
- Workshop on Advances in Continuous Optimization (EUROPT), Lisbon, 2022
- French-German-Portuguese conference on Optimization (FGP), Porto, 2022
- Workshop on Advances in Continuous Optimization (EUROPT), online, 2021
- Symposium on Numerical Analysis and Optimization, UFPR, online, 2021
- Conference on Neural Information Processing Systems (NeurIPS), online, 2020
- International Conference on Machine Learning (ICML), online, 2020
- Research seminar of Optimization and Learning for Data Science group, Grenoble, 2019
- French-German-Swiss conference on Optimization (FGS), Nice, 2019
- International Conference on Continuous Optimization (ICCOPT), Berlin, 2019
- Workshop on Advances in Continuous Optimization (EUROPT), Glasgow, 2019
- Summer School on Optimization, Big Data and Applications in Veroli, 2019
- Traditional School Control, Information and Optimization in Moscow, 2018 – 2019
- International Conference on Machine Learning (ICML), Stockholm, 2018

ACHIEVEMENTS AND AWARDS

2025	AISTATS Oral Presentation (2% of all submissions)
2023–2024	Two MSc student theses successfully defended at EPFL under my direct supervision
2023	ICML Oral Presentation (less than 2.4% of all submissions)
2020	ICML Top Reviewer NeurIPS Oral Presentation (less than 1.12% of all submissions)
2019	Best Paper Presentation Award at OBA School NeurIPS Top Reviewers Award
2018	Best Talk Award at Control, Information and Optimization School by B.T. Polyak ICML travel award
2015–2016	Participant of Challenge24 Finals – International 24-hour Programming Contest
2015	Top-200 in Facebook Hacker Cup Moscow festival of sport programming – First degree diploma
2012–2015	University Advanced Scholarship
2014	Moscow festival of sport programming – Second degree diploma All Siberian open programming contest – Second degree diploma Participant of ACM ICPC NEERC – Third degree diploma
2013	Top-600 in Russian Code Cup
2011	Prizewinner of ROI (Russian National Olympiad in Informatics among high school students) – 26th place Gold medal for extraordinary successes in study
2010	Prizewinner of ROI – 90th place