Nikita Doikov

Email: nikita.doikov@uclouvain.be
Homepage: doikov.com
Residence: Belgium, Louvain-la-Neuve
Nationality: Russian

RESEARCH INTERESTS

Optimization (numerical methods, convex optimization, second-order methods, tensor methods, global complexity bounds, stochastic optimization), Algorithms, Machine Learning

EDUCATION

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

MSc, Skoltech and Higher School of Economics, Russia, GPA – 9.3/10.0 — 2017
Program: Mathematical Methods of Optimization and Stochastics
Thesis: "Regularized Newton method for optimizing strongly convex functions"
Supervisors: Yury Maximov and Yurii Nesterov

BSc, Lomonosov Moscow State University, Russia, GPA – 4.9/5.0 — 2015
Faculty of Computational Mathematics and Cybernetics
Thesis: "Adaptive regularization of probabilistic topic models"
Supervisor: Konstantin Vorontsov

WORK EXPERIENCE

Postdoctoral Researcher at **UCLouvain**, Belgium, ICTEAM / CORE	Oct 2021 – *now*
Doctoral Researcher at **UCLouvain**, Belgium, ICTEAM / CORE	Jan 2019 – Sep 2021
Junior Research Scientist at **Samsung-HSE Laboratory**, Moscow	Apr 2018 – Aug 2018
Junior Software Engineer at **Yandex**, Moscow, Maps Routing team	Nov 2015 – Jul 2016
Research Engineer at **Computing Centre of RAS**, Moscow, Topic Modelling	Jun – Dec 2015

INTERNSHIPS AND RESEARCH VISITS

Research Visitor at **Université Grenoble Alpes**, DAO team	Sep 2019
Software Engineering Intern at **Google**, Zürich, Geo GA team	Aug – Nov 2018
Research Visitor at **KAUST**, Visual Computing Center, group of Peter Richtárik	Oct – Nov 2017
Research Intern at **Skoltech**, Moscow, Center for Energy Systems	Oct 2016 – Nov 2017
Software Engineering Intern at **Google**, Zürich, YouTube Content ID team	Jul – Sep 2016

TECHNICAL SKILLS

Advanced: Algorithms and Data Structures, Numerical Optimization Methods, Machine Learning, Data Analysis, Natural Language Processing, Computer Vision

Machine Learning: classification and clustering, learning with latent variables, regularization, graphical models, neural networks, deep learning, structural learning, reinforcement learning, variational inference

Technologies: C++, Python, Matlab, R, SQL, Intel Assembler, UNIX OS architecture, MapReduce, Flume, BigARTM, Vowpal Wabbit, word2vec, BERT, libsvm, liblinear, Theano, Lasagne, DistBelief, TensorFlow, LaTeX, Git, SVN

PUBLICATIONS

Preprints

Optimization Methods for Fully Composite Problems, 2021
N. Doikov and Yu. Nesterov, CORE Discussion Papers; 2021/01, arXiv:2103.12632

Affine-invariant contracting-point methods for Convex Optimization, 2020
N. Doikov and Yu. Nesterov, CORE Discussion Papers; 2020/29, arXiv:2009.08894

Conference papers

Convex optimization based on global lower second-order models, 2020
N. Doikov and Yu. Nesterov, Advances in Neural Information Processing Systems (NeurIPS), arXiv:2006.08598

Stochastic Subspace Cubic Newton Method, 2020
F. Hanzely, N. Doikov, P. Richtárik and Yu. Nesterov, Proceedings of the 37th International Conference on Machine Learning (ICML), arXiv:2002.09526

Inexact Tensor Methods with Dynamic Accuracies, 2020
N. Doikov and Yu. Nesterov, Proceedings of the 37th International Conference on Machine Learning (ICML), arXiv:2002.09403

Randomized Block Cubic Newton Method, 2018
N. Doikov and P. Richtárik, Proceedings of the 35th International Conference on Machine Learning (ICML), arXiv:1802.04084

Journals

Contracting Proximal Methods for Smooth Convex Optimization, 2019
N. Doikov and Yu. Nesterov, SIAM Journal on Optimization, arXiv:1912.07972

Local Convergence of Tensor Methods, 2019
N. Doikov and Yu. Nesterov, Mathematical Programming Journal, arXiv:1912.02516

Minimizing Uniformly Convex Functions by Cubic Regularization of Newton Method, 2019
N. Doikov and Yu. Nesterov, Journal of Optimization Theory and Applications, arXiv:1905.02671

TEACHING EXPERIENCE

Large-scale Optimization and Applications at Skoltech 2017
Seminars and practical sessions. Lecturers: Elena Gryazina and Yury Maximov

Optimization Methods at Faculty of Computer Science, HSE 2017, 2018
Seminars and practical sessions. Lecturer: Dmitry Kroporov

Bayesian Methods in Machine Learning at HSE 2017, 2018, 2019
Teacher assistant. Lecturer: Dmitry Vetrov

Optimization models and methods II at UCLouvain 2021
Teacher assistant. Lecturers: François Glineur and Geovani Grapiglia

ACADEMIC SERVICE

Conference reviews: ICML 2019, 2020, 2021, NeurIPS 2019, 2020, 2021

Journal reviews: Optimization Methods and Software, Journal of Optimization Theory and Applications, IEEE Transactions on Information Theory, IMA Journal of Numerical Analysis

CONFERENCES AND SCHOOLS

- 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*
- 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*
- Recent Advances in Algorithms in St. Petersburg, 2017
- Deep Hack Artificial Intelligence competition and lecture series at MIPT, 2016
- Participant of the MIPT fall programming training, 2014
- Winter and Summer Programming Training Camps in Petrozavodsk, 2012 – 2014
- Winter Programming School on Advanced Algorithms in Kharkiv, 2012

*The talk was given.

ACHIEVEMENTS AND AWARDS

2020	ICML Top Reviewer NeurIPS Oral Presentation
2019	Best Paper Presentation Award at OBA School NeurIPS Top Reviewers Award
2018	Best Talk Award at Control, Information and Optimization School 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 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

LANGUAGES

Russian: native
English: professional working proficiency