Nikita Doikov

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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 methods), Algorithms, Machine Learning, Natural Language Processing

EDUCATION

PhD, UCLouvain, Belgium

2021

Thosis: "New second order and tensor methods in Convey Optimization"

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 – 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

Lower Complexity Bounds for Minimizing Regularized Functions, N. Doikov arXiv:2202.04545	2022
Gradient Regularization of Newton Method with Bregman Distances, N. Doikov and Yu. Nesterov, arXiv:2112.02952	2021
Optimization Methods for Fully Composite Problems, N. Doikov and Yu. Nesterov, CORE Discussion Papers; 2021/01, arXiv:2103.12632	2021
Conference papers	
Convex optimization based on global lower second-order models, N. Doikov and Yu. Nesterov, Advances in Neural Information Processing Systems (NeurIPS), arXiv:2006.08598	2020
Stochastic Subspace Cubic Newton Method, F. Hanzely, N. Doikov, P. Richtárik and Yu. Nesterov, Proceedings of the 37th International Conference on Machine Learning (ICML), arXiv:2002.09526	2020
Inexact Tensor Methods with Dynamic Accuracies, N. Doikov and Yu. Nesterov, Proceedings of the 37th International Conference on Machine Learning (ICML), arXiv:2002.09403	2020
Randomized Block Cubic Newton Method, N. Doikov and P. Richtárik, Proceedings of the 35th International Conference on Machine Learning (ICML), arXiv:1802.04084	2018
Journals	
Affine-invariant contracting-point methods for Convex Optimization, N. Doikov and Yu. Nesterov, Mathematical Programming Journal, arXiv:2009.08894	2020
Contracting Proximal Methods for Smooth Convex Optimization, N. Doikov and Yu. Nesterov, SIAM Journal on Optimization, arXiv:1912.07972	2019
Local Convergence of Tensor Methods, N. Doikov and Yu. Nesterov, Mathematical Programming Journal, arXiv:1912.02516	2019
Minimizing Uniformly Convex Functions by Cubic Regularization of Newton Method, N. Doikov and Yu. Nesterov, Journal of Optimization Theory and Applications, arXiv:1905.02671	2019

TEACHING EXPERIENCE

Large-scale Optimization and Applications at Skoltech Seminars and practical sessions. Lecturers: Elena Gryazina and Yury Maximov	2017
Optimization Methods at Faculty of Computer Science, HSE Seminars and practical sessions. Lecturer: Dmitry Kroporov	2017, 2018
Bayesian Methods in Machine Learning at HSE Teacher assistant. Lecturer: Dmitry Vetrov	2017, 2018, 2019
Optimization models and methods II at UCLouvain Teacher assistant. Lecturers: François Glineur and Geovani Grapiglia	2021

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*
- o 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
- o International Conference on Machine Learning (ICML), Stockholm, 2018*
- o Recent Advances in Algorithms in St. Petersburg, 2017
- $\circ~$ 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

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

LANGUAGES

Russian: native

English: professional working proficiency

2010 Prizewinner of ROI – 90th place

French: basic

^{*}The talk was given.