Nikita Doikov

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Residence: Belgium, Louvain-la-Neuve
Languages: English, Russian

RESEARCH INTERESTS

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

EDUCATION

PhD, UCLouvain — 2018 – 2021 (expected)
Thesis: "New second-order and tensor methods in Convex Optimization"
Supervisor: Yurii Nesterov

MSc, Skoltech and Higher School of Economics, GPA – 9.3/10.0 — 2015 – 2017
Thesis: "Regularized Newton method for optimizing strongly convex functions"
Supervisors: Yury Maximov and Yurii Nesterov

BSc, Lomonosov Moscow State University, GPA – 4.9/5.0 — 2011 – 2015
Thesis: "Adaptive regularization of probabilistic topic models"
Supervisor: Konstantin Vorontsov

INDUSTRY EXPERIENCE

Software Engineering Intern at **Google**, Zürich, Geo GA team — 2018

Junior Research Scientist at **Samsung-HSE Laboratory**, Moscow — 2018

Research Intern at **Skoltech**, Moscow, Center for Energy Systems — 2016 – 2017

Software Engineering Intern at **Google**, Zürich, YouTube Content ID team — 2016

Junior Software Engineer at **Yandex**, Moscow, Maps Routing team — 2015 – 2016

Research Engineer at **Computing Centre of RAS**, Moscow, Topic Modelling — 2015

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

TEACHING EXPERIENCE

Large-scale Optimization and Applications at Skoltech, seminars — 2017

Optimization Methods at Faculty of Computer Science, HSE, seminars — 2017, 2018

Bayesian Methods in Machine Learning at HSE, teacher assistant — 2017, 2018, 2019

PUBLICATIONS

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

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

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

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

REVIEWING

Conferences: ICML 2019, 2020, 2021, NeurIPS 2019, 2020, 2021
Journals: Optimization Methods and Software, Journal of Optimization Theory and Applications, IEEE Transactions on Information Theory

CONFERENCES, SCHOOLS AND RESEARCH VISITS

- 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*
- Visit of Optimization and Learning for Data Science group in Grenoble, 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*
- Visit of the group of Peter Richtárik at KAUST, 2017*
- 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.