

# Nikita Doikov

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Homepage: [doikov.com](http://doikov.com)

Residence: Belgium, Louvain-la-Neuve

Nationality: Russian

## RESEARCH INTERESTS

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

## EDUCATION

**PhD Student, UCLouvain** 2018 – *now*

Thesis topic: Development of second-order optimization methods

Supervisor: [Yurii Nesterov](#)

**MSc, Skoltech and Higher School of Economics**, GPA – 9.3/10.0 2015 – 2017

Thesis title: “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 title: “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,  $\text{\LaTeX}$ , 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

- 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, [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  
Journals: Optimization Methods and Software, Journal of Optimization Theory and Applications, IEEE Transactions on Information Theory

## CONFERENCES, SCHOOLS AND RESEARCH VISITS

- 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, France, 2019\*
- Summer School on [Optimization, Big Data and Applications](#) in Veroli, Italy, 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](#), Saudi Arabia, 2017\*
- [Recent Advances in Algorithms](#) in St. Petersburg, 2017
- [Deep Hack](#) Artificial Intelligence competition and lecture series, 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, Ukraine, 2012

\*The talk was given.

## LANGUAGES

Russian: native  
English: professional working proficiency