

Curriculum Vitae: Anton Rodomanov

PERSONAL INFORMATION

- Born on 22/01/1994, Russian citizenship, married, 1 daughter.
- E-mail: anton.rodomanov@uclouvain.be.
- Address: Louvain-la-Neuve, Belgium.
- Languages: English (advanced), French (basic), Russian (native).

RESEARCH INTERESTS

Convex Optimization, Numerical Algorithms, Complexity Estimates, Randomized Methods, Machine Learning, Statistics.

EDUCATION

PhD in Mathematical Engineering

[Catholic University of Louvain \(UCLouvain\)](#), [Department of Mathematical Engineering \(INMA\)](#)

2019–22

Louvain-la-Neuve, Belgium

Thesis: [Quasi-Newton Methods with Provable Efficiency Guarantees](#).

Advisor: [Yurii Nesterov](#).

MSc in Computer Science

[Higher School of Economics](#), [Faculty of Computer Science](#)

2015–17

Moscow, Russia

Thesis: A Superlinearly-Convergent Proximal Newton-Type Method for the Optimization of Finite Sums.

Advisors: [Dmitry Kropotov](#) and [Dmitry Vetrov](#).

BSc in Computer Science

[Lomonosov Moscow State University](#), [Faculty of Computational Mathematics and Cybernetics](#)

2011–15

Moscow, Russia

Thesis: Development of a Stochastic Optimization Method for Machine Learning Problems with Big Data.

Advisors: [Dmitry Kropotov](#) and [Dmitry Vetrov](#).

WORK EXPERIENCE

Doctoral and Postdoctoral Researcher

[Department of Mathematical Engineering \(INMA\)](#) at [UCLouvain](#). Supervised by [Yurii Nesterov](#).

Jan 2019 – now

Louvain-la-Neuve, Belgium

Research Fellow

[Samsung-HSE Lab](#) at [Higher School of Economics](#). Headed by [Dmitry Vetrov](#).

Jan–Dec 2018

Moscow, Russia

Junior Researcher

[International Laboratory of Deep Learning and Bayesian Methods](#) at [Higher School of Economics](#).

Headed by [Dmitry Vetrov](#).

Jan–Dec 2017

Moscow, Russia

PUBLICATIONS

Journal articles

Subgradient ellipsoid method for nonsmooth convex problems

2022

A. Rodomanov and Y. Nesterov. Math. Program. [\[url\]](#) [\[arXiv\]](#)

New Results on Superlinear Convergence of Classical Quasi-Newton Methods

2021

A. Rodomanov and Y. Nesterov. J. Optim. Theory Appl. 188:744–769. [\[url\]](#) [\[arXiv\]](#)

Rates of superlinear convergence for classical quasi-Newton methods

2021

A. Rodomanov and Y. Nesterov. Math. Program. [\[url\]](#) [\[arXiv\]](#)

Greedy Quasi-Newton Methods with Explicit Superlinear Convergence

2021

A. Rodomanov and Y. Nesterov. SIAM J. Optim. 31(1):785–811. [\[url\]](#) [\[arXiv\]](#)

Smoothness Parameter of Power of Euclidean Norm A. Rodomanov and Y. Nesterov. J. Optim. Theory Appl. 185:303–326. [url]	2020
A Randomized Coordinate Descent Method with Volume Sampling A. Rodomanov and D. Kropotov. SIAM J. Optim. 30(3):1878–1904. [url] [arXiv]	2020
Conference and workshop papers	
A Superlinearly-Convergent Proximal Newton-Type Method for the Optimization of Finite Sums A. Rodomanov and D. Kropotov. ICML 2016:2597–2605. [url] [pdf] [supplementary] [code]	2016
Primal-Dual Method for Searching Equilibrium in Hierarchical Congestion Population Games P. Dvurechensky, A. Gasnikov, E. Gasnikova, S. Matsievsky, A. Rodomanov, I. Usik. DOOR-SUP 2016:584-595. [url] [arXiv]	2016
A Newton-type Incremental Method with a Superlinear Rate of Convergence A. Rodomanov and D. Kropotov. OPT15@NIPS. [url]	2015
Putting MRFs on a Tensor Train A. Novikov, A. Rodomanov, A. Osokin, D. Vetrov. ICML 2014:811–819. [url] [pdf] [supplementary] [poster] [slides] [code]	2014
TALKS AT CONFERENCES AND SEMINARS	
Subgradient Ellipsoid Method for Nonsmooth Convex Problems 20th French-German-Portugese Conference on Optimization (FGP22) [slides]	May 2022 Porto, Portugal
New Results on Superlinear Convergence of Classical Quasi-Newton Methods XIII Symposium of Numerical Analysis and Optimization [slides] 18th Workshop on Advances in Continuous Optimization (EUROPT 2021) [slides]	Mar, Jul 2021 Curitiba, Brazil (online) Toulouse, France (online)
Greedy Quasi-Newton Method with Explicit Superlinear Convergence 17th Workshop on Advances in Continuous Optimization (EUROPT 2019) [slides] Sixth International Conference on Continuous Optimization (ICCOPT 2019) [slides] 19th French-German-Swiss Conference on Optimization (FGS'2019) [slides] Seminar in Mathematical Engineering at UCLouvain [slides]	Jun, Aug, Sep, Oct 2019 Glasgow, UK Berlin, Germany Nice, France Louvain-la-Neuve, Belgium
Lecture: Introduction to Stochastic Optimization DeepBayes Summer School [slides] [video]	Aug 2018 Moscow, Russia
Adaptive gradient methods for stochastic and online optimization Seminar on Bayesian Methods in Machine Learning [slides]	Feb 2018 Moscow, Russia
Incremental Newton Method for Big Sums of Functions Seminar on Stochastic Analysis in Problems, IUM [slides (in Russian)] [video (in Russian)]	Oct 2016 Moscow, Russia
A Superlinearly-Convergent Proximal Newton-Type Method for the Optimization of Finite Sums International Conference on Machine Learning (ICML) [slides] [video]	Jun 2016 New York, USA
Optimization Methods for Big Sums of Functions Deep Machine Intelligence Workshop at Skoltech [slides]	Jun 2016 Moscow, Russia
Incremental Newton Method for Minimizing Big Sums of Functions HSE off-site seminar on Machine Learning [slides]	May 2016 Voronovo, Russia
Introduction to the Tensor Train Decomposition and Its Applications in Machine Learning Seminar on Applied Linear Algebra at HSE [slides]	Mar 2016 Moscow, Russia
Proximal Incremental Newton Method Seminar on Bayesian Methods in Machine Learning [slides]	Feb 2016 Moscow, Russia
Probabilistic Graphical Models: a Tensorial Perspective International Conference on Matrix Methods in Mathematics and Applications (MMAA) [slides]	Aug 2015 Moscow, Russia

A Fast Incremental Optimization Method with a Superlinear Rate of Convergence Summer School on Control, Information and Optimization [slides]	Jun 2015 Solnechnogorsk, Russia
Markov Chains and Spectral Theory Seminar on Bayesian Methods in Machine Learning [slides (in Russian)]	Oct 2014 Moscow, Russia
Low-Rank Representation of MRF Energy by means of the TT-Format SIAM Conference in Imaging Science (SIAM-IS) [slides]	May 2014 Hong-Kong, China
Fast Gradient Method Seminar on Bayesian Methods in Machine Learning [slides (in Russian)]	Apr 2014 Moscow, Russia
TT-Decomposition for Compact Representation of Tensors Seminar on Bayesian Methods in Machine Learning [slides (in Russian)]	Oct 2013 Moscow, Russia

POSTERS

Randomized Minimization of Eigenvalue Functions Joint with Y. Nesterov. Optimization and Statistical Learning Workshop. [pdf]	Jan 2023 Les Houches, France
Quasi-Newton and Second-Order Methods for Convex Optimization Joint with N. Doikov and Y. Nesterov. ICTEAM Welcome Day. [pdf]	Oct 2021 Louvain-la-Neuve, Belgium
A Superlinearly-Convergent Proximal Newton-Type Method for the Optimization of Finite Sums Joint with D. Kropotov. ICML 2016. [pdf]	Jun 2016 New York, USA
A Newton-type Incremental Method with a Superlinear Convergence Rate Joint with D. Kropotov. OPT15@NIPS. [pdf]	Dec 2015 Montreal, Canada
A Fast Incremental Optimization Method with a Superlinear Rate of Convergence Joint with D. Kropotov. Microsoft Research PhD Summer School. [pdf]	Jul 2015 Cambridge, UK
Putting MRFs on a Tensor Train Joint with A. Novikov, A. Osokin and D. Vetrov. ICML 2014. [pdf]	Jun 2014 Beijing, China

RESEARCH VISITS

CISPA Helmholtz Center for Information Security Hosted by Sebastian U. Stich .	Jan 2023 Saarbrücken, Germany
Laboratory for Information and Inference Systems (LIONS) at EPFL Hosted by Volkan Cevher .	Jul, Nov 2022 Lausanne, Switzerland

AWARDS

Increased State Academic Scholarship for research and academic achievements, at Higher School of Economics	2017
Golden HSE Award in the Silver Nestling nomination, at Higher School of Economics	2016
Scholarship of the Lukoil Fund , at Higher School of Economics	2016
Ilya Segalovich Scholarship (from Yandex), at Higher School of Economics	2016
Travel award , at International Conference on Machine Learning (ICML)	2016
Best thesis award (1st place), at Lomonosov Moscow State University	2015

TEACHING EXPERIENCE

Optimization Models and Methods II, exercise sessions

2021–22

Graduate-level course at [UCLouvain](#). Lectures by [François Glineur](#) and [Geovani Grapiglia](#).

Louvain-la-Neuve, Belgium

Optimization Methods in Machine Learning, exercise sessions

2015–18

Graduate-level course at [Lomonosov Moscow State University](#), [Yandex School of Data Analysis](#) and [Moscow Institute of Physics and Technology](#). Lectures by [Dmitry Kropotov](#).

Moscow, Russia

Continuous Optimization, exercise sessions

2017–18

Undergraduate-level course at [Higher School of Economics](#). Lectures by [Dmitry Kropotov](#).

Moscow, Russia

Machine Learning, exercise sessions

2015

Graduate-level course at [Skoltech](#). Lectures by [Victor Kitov](#).

Moscow, Russia

REVIEWING

- **Journals:** [Mathematical Programming](#), [SIAM Journal on Optimization \(SIOPT\)](#), [Journal of Optimization Theory and Applications \(JOTA\)](#), [Journal of Machine Learning Research \(JMLR\)](#), [Automatica](#).
- **Conferences:** [Conference on Neural Information Processing Systems \(NeurIPS\)](#).