

Dmitry Kovalev

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Education

King Abdullah University of Science and Technology

PHD IN COMPUTER SCIENCE

Thuwal, Saudi Arabia

Jan. 2020 - PRESENT

Moscow Institute of Physics and Technology

MS IN APPLIED MATHEMATICS AND PHYSICS

Moscow, Russia

Sep. 2018 - Jun. 2021

King Abdullah University of Science and Technology

MS IN COMPUTER SCIENCE

Thuwal, Saudi Arabia

Sep. 2018 - Dec. 2019

Moscow Institute of Physics and Technology

BS IN APPLIED MATHEMATICS AND PHYSICS

Moscow, Russia

Sep. 2014 - Jun. 2018

Skills

Programming C/C++, Python; **Past Experience:** Go, C#, VB.NET

Mathematics Calculus, Linear Algebra, Probability and Statistics

Honors & Awards

2021	CEMSE Research Excellence Award , King Abdullah University of Science and Technology	Saudi Arabia
2021	Best Student Paper Award , FL-ICML 2021 Workshop	Online
2021	Yandex Ilya Segalovich Scientific Prize , for young researchers	Moscow, Russia
2020	Yandex Ilya Segalovich Scientific Prize , for young researchers	Moscow, Russia
2015-2017	Abramov's Fund Scholarship , for top students of Moscow Institute of Physics and Technology	Moscow, Russia
2014	Honourable Mention , APHO (Asian Physics Olympiad)	Singapore
2014	Prize-Winner , All-Russian School Physics Olympiad, Final Round	Saint Petersburg, Russia
2014	Winner , All-Russian School Programming Olympiad, Region Round	Moscow, Russia
2014	Winner , All-Russian School Math Olympiad, Region Round	Moscow, Russia
2012-2014	Russian President's Scholarship , for high school students	Russia
2012-2014	Moscow Governor's Scholarship , for high school students	Moscow, Russia
2013	Winner , All-Russian School Physics Olympiad, Final Round	Vladivostok, Russia
2012	Prize-Winner , All-Russian School Physics Olympiad, Final Round	Saransk, Russia

Papers

Optimal Algorithms for Decentralized Stochastic Variational Inequalities

DMITRY KOVALEV, ALEKSANDR BEZNOSIKOV, ABDURAKHMOM SADIEV, MICHAEL PERSHIANOV, PETER RICHTÁRIK, ALEXANDER GASNIKOV

arXiv 2022

06 Feb 2022

Accelerated Primal-Dual Gradient Method for Smooth and Convex-Concave Saddle-Point Problems with Bilinear Coupling

DMITRY KOVALEV, ALEXANDER GASNIKOV, PETER RICHTÁRIK

arXiv 2021

30 Dec 2021

Near-Optimal Decentralized Algorithms for Saddle Point Problems over Time-Varying Networks

ALEKSANDR BEZNOSIKOV, ALEXANDER ROGOZIN, DMITRY KOVALEV, ALEXANDER GASNIKOV

[arXiv 2021](#)

13 Jul 2021

Lower Bounds and Optimal Algorithms for Smooth and Strongly Convex Decentralized Optimization Over Time-Varying Networks

DMITRY KOVALEV, ELNUR GASANOV, PETER RICHTÁRIK, ALEXANDER GASNIKOV

[NeurIPS 2021](#)

08 Jun 2021

An Optimal Algorithm for Strongly Convex Minimization under Affine Constraints

ADIL SALIM, LAURENT CONDAT, DMITRY KOVALEV, PETER RICHTÁRIK

[AISTATS 2022](#)

22 Feb 2021

ADOM: Accelerated Decentralized Optimization Method for Time-Varying Networks

DMITRY KOVALEV, EGOR SHULGIN, PETER RICHTÁRIK, ALEXANDER ROGOZIN, ALEXANDER GASNIKOV

[ICML 2021](#)

18 Feb 2021

IntSGD: Floatless Compression of Stochastic Gradients

KONSTANTIN MISHCHENKO, BOKUN WANG, DMITRY KOVALEV, PETER RICHTÁRIK

[ICLR 2022](#)

16 Feb 2021

Decentralized Distributed Optimization for Saddle Point Problems

ALEXANDER ROGOZIN, ALEXANDER BEZNOSIKOV, DARINA DVINSKIKH, DMITRY KOVALEV, PAVEL DVURECHENSKY, ALEXANDER GASNIKOV

[arXiv 2021](#)

15 Feb 2021

A Linearly Convergent Algorithm for Decentralized Optimization: Sending Less Bits for Free!

DMITRY KOVALEV, ANASTASIA KOLOSKOVA, MARTIN JAGGI, PETER RICHTÁRIK, SEBASTIAN U. STICH

[AISTATS 2021](#)

03 Nov 2020

Linearly Converging Error Compensated SGD

EDUARD GORBUNOV, DMITRY KOVALEV, DMITRY MAKARENKO, PETER RICHTÁRIK

[NeurIPS 2020](#)

23 Oct 2020

Towards Accelerated Rates for Distributed Optimization over Time-varying Networks

ALEXANDER ROGOZIN, VLADISLAV LUKOSHKIN, ALEXANDER GASNIKOV, DMITRY KOVALEV, EGOR SHULGIN

[arXiv 2020](#)

23 Sep 2020

Optimal and Practical Algorithms for Smooth and Strongly Convex Decentralized Optimization

DMITRY KOVALEV, ADIL SALIM, PETER RICHTÁRIK

[NeurIPS 2020](#)

21 Jun 2020

From Local SGD to Local Fixed Point Methods for Federated Learning

GRIGORY MALINOVSKY, DMITRY KOVALEV, ELNUR GASANOV, LAURENT CONDAT, PETER RICHTÁRIK

[ICML 2020](#)

03 Apr 2020

Acceleration for Compressed Gradient Descent in Distributed and Federated Optimization

ZHIZE LI, DMITRY KOVALEV, XUN QIAN, PETER RICHTÁRIK

[ICML 2020](#)

26 Feb 2020

Fast Linear Convergence of Randomized BFGS

DMITRY KOVALEV, ROBERT M. GOWER, PETER RICHTÁRIK, ALEXANDER ROGOZIN

[arXiv 2020](#)

26 Feb 2020

Variance Reduced Coordinate Descent with Acceleration: New Method With a Surprising Application to Finite-Sum Problems

FILIP HANZELY, DMITRY KOVALEV, PETER RICHTÁRIK

[ICML 2020](#)

11 Feb 2020

Distributed Fixed Point Methods with Compressed Iterates

SÉLIM CHRAIBI, AHMED KHALED, DMITRY KOVALEV, PETER RICHTÁRIK, ADIL SALIM, MARTIN TAKÁČ

[arXiv 2019](#)

20 Dec 2019

Accelerated methods for composite non-bilinear saddle point problem

MOHAMMAD ALKOUSA, DARINA DVINSKIKH, FEDOR STONYAKIN, ALEXANDER GASNIKOV, DMITRY KOVALEV

[Computational Mathematics and
Mathematical Physics 2020](#)

09 Dec 2019

Stochastic Newton and Cubic Newton Methods with Simple Local Linear-Quadratic Rates

DMITRY KOVALEV, KONSTANTIN MISHCHENKO, PETER RICHTÁRIK

[NeurIPS 2019 Workshop](#)

03 Dec 2019

Stochastic Proximal Langevin Algorithm: Potential Splitting and Nonasymptotic Rates

ADIL SALIM, DMITRY KOVALEV, PETER RICHTÁRIK

[NeurIPS 2019](#)

28 May 2019

Revisiting Stochastic Extragradient

KONSTANTIN MISHCHENKO, DMITRY KOVALEV, EGOR SHULGIN, PETER RICHTÁRIK, YURA MALITSKY

[AISTATS 2020](#)

27 May 2019

RSN: Randomized Subspace Newton

ROBERT M. GOWER, DMITRY KOVALEV, FELIX LIEDER, PETER RICHTÁRIK

[NeurIPS 2019](#)

26 May 2019

Stochastic Distributed Learning with Gradient Quantization and Variance Reduction

SAMUEL HORVÁTH, DMITRY KOVALEV, KONSTANTIN MISHCHENKO, PETER RICHTÁRIK, SEBASTIAN U. STICH

[arXiv 2019](#)

04 Apr 2019

Don't Jump Through Hoops and Remove Those Loops: SVRG and Katyusha are Better Without the Outer Loop

DMITRY KOVALEV, SAMUEL HORVÁTH, PETER RICHTÁRIK

[ALT 2020](#)

24 Jan 2019

A hypothesis about the rate of global convergence for optimal methods (Newton's type) in smooth convex optimization

ALEXANDER GASNIKOV, DMITRY KOVALEV

[Computer Research
and Modeling 2018](#)

28 Feb 2018

Stochastic Spectral and Conjugate Descent Methods

DMITRY KOVALEV, EDUARD GORBUNOV, ELNUR GASANOV, PETER RICHTÁRIK

[NeurIPS 2018](#)

11 Feb 2018

Conferences & Talks

ICCOPT 2019

TALK: «REVISITING STOCHASTIC EXTRAGRADIENT METHOD»

[TU, Berlin, Germany](#)

5 Aug. 2019

Data Science Summer School 2019

POSTER: «STOCHASTIC DISTRIBUTED LEARNING WITH GRADIENT QUANTIZATION AND VARIANCE REDUCTION»

[École polytechnique, Paris, France](#)

26 Jun. 2019

Traditional School (Control, Information and Optimization)

POSTER: «STOCHASTIC DISTRIBUTED LEARNING WITH GRADIENT QUANTIZATION AND VARIANCE REDUCTION»

[Voronovo, Moscow Region, Russia](#)

20 Jun. 2019

Weekly seminar «Automatic control and Optimization Theory»

TALK: «STOCHASTIC SPECTRAL AND CONJUGATE DESCENT METHODS»

[IPU, Moscow, Russia](#)

26 Mar. 2019

Seminar «Modern Optimization Methods»

TALK: «STOCHASTIC DISTRIBUTED LEARNING WITH GRADIENT QUANTIZATION AND VARIANCE REDUCTION»

MIPT, Moscow, Russia

25 Mar. 2019

Traditional School (Control, Information and Optimization)

POSTER: «STOCHASTIC SPECTRAL DESCENT METHODS»

Voronovo, Moscow Region, Russia

Jun. 2018

Optimization and Big Data Workshop

POSTER: STOCHASTIC SPECTRAL DESCENT METHODS

KAUST, Thuwal, Saudi Arabia

Feb. 2018