# Dmitry **Kovalev**

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## Education

**King Abdullah University of Science and Technology** — *Thuwal, Saudi Arabia*
PhD in Computer Science — *Jan. 2020 - PRESENT*

**Moscow Institute of Physics and Technology** — *Moscow, Russia*
MS in Applied Mathematics and Physics — *Sep. 2018 - Jun. 2021*

**King Abdullah University of Science and Technology** — *Thuwal, Saudi Arabia*
MS in Computer Science — *Sep. 2018 - Dec. 2019*

**Moscow Institute of Physics and Technology** — *Moscow, Russia*
BS in Applied Mathematics and Physics — *Sep. 2014 - Jun. 2018*

## Skills

**Programming** C/C++, Python; **Past Experience:** Go, C#, VB.NET
**Mathematics** Calculus, Linear Algebra, Probability and Statistics

## Honors & Awards

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|---|---|---|
| 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** — *arXiv 2022*
Dmitry Kovalev, Aleksandr Beznosikov, Abdurakhmon Sadiev, Michael Persiianov, Peter Richtárik, Alexander Gasnikov — *06 Feb 2022*

**Accelerated Primal-Dual Gradient Method for Smooth and Convex-Concave Saddle-Point Problems with Bilinear Coupling** — *arXiv 2021*
Dmitry Kovalev, Alexander Gasnikov, Peter Richtárik — *30 Dec 2021*

**Near-Optimal Decentralized Algorithms for Saddle Point Problems over Time-Varying Networks**
*arXiv 2021*
Aleksandr Beznosikov, Alexander Rogozin, Dmitry Kovalev, Alexander Gasnikov
*13 Jul 2021*

**Lower Bounds and Optimal Algorithms for Smooth and Strongly Convex Decentralized Optimization Over Time-Varying Networks**
*NeurIPS 2021*
Dmitry Kovalev, Elnur Gasanov, Peter Richtárik, Alexander Gasnikov
*08 Jun 2021*

**An Optimal Algorithm for Strongly Convex Minimization under Affine Constraints**
*AISTATS 2022*
Adil Salim, Laurent Condat, Dmitry Kovalev, Peter Richtárik
*22 Feb 2021*

**ADOM: Accelerated Decentralized Optimization Method for Time-Varying Networks**
*ICML 2021*
Dmitry Kovalev, Egor Shulgin, Peter Richtárik, Alexander Rogozin, Alexander Gasnikov
*18 Feb 2021*

**IntSGD: Floatless Compression of Stochastic Gradients**
*ICLR 2022*
Konstantin Mishchenko, Bokun Wang, Dmitry Kovalev, Peter Richtárik
*arXiv 2021*
16 Feb 2021

**Decentralized Distributed Optimization for Saddle Point Problems**
*arXiv 2021*
Alexander Rogozin, Alexander Beznosikov, Darina Dvinskikh, Dmitry Kovalev, Pavel Dvurechensky, Alexander Gasnikov
*15 Feb 2021*

**A Linearly Convergent Algorithm for Decentralized Optimization: Sending Less Bits for Free!**
*AISTATS 2021*
Dmitry Kovalev, Anastasia Koloskova, Martin Jaggi, Peter Richtárik, Sebastian U. Stich
*03 Nov 2020*

**Linearly Converging Error Compensated SGD**
*NeurIPS 2020*
Eduard Gorbunov, Dmitry Kovalev, Dmitry Makarenko , Peter Richtárik
*23 Oct 2020*

**Towards Accelerated Rates for Distributed Optimization over Time-varying Networks**
*arXiv 2020*
Alexander Rogozin, Vladislav Lukoshkin , Alexander Gasnikov, Dmitry Kovalev, Egor Shulgin
*23 Sep 2020*

**Optimal and Practical Algorithms for Smooth and Strongly Convex Decentralized Optimization**
*NeurIPS 2020*
Dmitry Kovalev, Adil Salim, Peter Richtárik
*21 Jun 2020*

**From Local SGD to Local Fixed Point Methods for Federated Learning**
*ICML 2020*
Grigory Malinovsky, Dmitry Kovalev, Elnur Gasanov, Laurent Condat, Peter Richtárik
*03 Apr 2020*

**Acceleration for Compressed Gradient Descent in Distributed and Federated Optimization**
*ICML 2020*
Zhize Li, Dmitry Kovalev, Xun Qian, Peter Richtárik
*26 Feb 2020*

**Fast Linear Convergence of Randomized BFGS**
*arXiv 2020*
Dmitry Kovalev, Robert M. Gower, Peter Richtárik, Alexander Rogozin
*26 Feb 2020*

**Variance Reduced Coordinate Descent with Acceleration: New Method With a Surprising Application to Finite-Sum Problems**
*ICML 2020*
Filip Hanzely, Dmitry Kovalev, Peter Richtárik
*11 Feb 2020*

**Distributed Fixed Point Methods with Compressed Iterates** — *arXiv 2019*
Sélim Chraibi, Ahmed Khaled, Dmitry Kovalev, Peter Richtárik, Adil Salim, Martin Takáč — *20 Dec 2019*

**Accelerated methods for composite non-bilinear saddle point problem** — *Computational Mathematics and Mathematical Physics 2020*
Mohammad Alkousa, Darina Dvinskikh, Fedor Stonyakin, Alexander Gasnikov, Dmitry Kovalev — *09 Dec 2019*

**Stochastic Newton and Cubic Newton Methods with Simple Local Linear-Quadratic Rates** — *NeurIPS 2019 Workshop*
Dmitry Kovalev, Konstantin Mishchenko, Peter Richtárik — *03 Dec 2019*

**Stochastic Proximal Langevin Algorithm: Potential Splitting and Nonasymptotic Rates** — *NeurIPS 2019*
Adil Salim, Dmitry Kovalev, Peter Richtárik — *28 May 2019*

**Revisiting Stochastic Extragradient** — *AISTATS 2020*
Konstantin Mishchenko, Dmitry Kovalev, Egor Shulgin, Peter Richtárik, Yura Malitsky — *27 May 2019*

**RSN: Randomized Subspace Newton** — *NeurIPS 2019*
Robert M. Gower, Dmitry Kovalev, Felix Lieder, Peter Richtárik — *26 May 2019*

**Stochastic Distributed Learning with Gradient Quantization and Variance Reduction** — *arXiv 2019*
Samuel Horváth, Dmitry Kovalev, Konstantin Mishchenko, Peter Richtárik, Sebastian U. Stich — *04 Apr 2019*

**Don't Jump Through Hoops and Remove Those Loops: SVRG and Katyusha are Better Without the Outer Loop** — *ALT 2020*
Dmitry Kovalev, Samuel Horváth, Peter Richtárik — *24 Jan 2019*

**A hypothesis about the rate of global convergence for optimal methods (Newton's type) in smooth convex optimization** — *Computer Research and Modeling 2018*
Alexander Gasnikov, Dmitry Kovalev — *28 Feb 2018*

**Stochastic Spectral and Conjugate Descent Methods** — *NeurIPS 2018*
Dmitry Kovalev, Eduard Gorbunov, Elnur Gasanov, Peter Richtárik — *11 Feb 2018*

## Conferences & Talks

**ICCOPT 2019** — *TU, Berlin, Germany*
Talk: «Revisiting Stochastic Extragradient Method» — *5 Aug. 2019*

**Data Science Summer School 2019** — *École polytechnique, Paris, France*
Poster: «Stochastic Distributed Learning with Gradient Quantization and Variance Reduction» — *26 Jun. 2019*

**Traditional School (Control, Information and Otimization)** — *Voronovo, Moscow Region, Russia*
Poster: «Stochastic Distributed Learning with Gradient Quantization and Variance Reduction» — *20 Jun. 2019*

**Weekly seminar «Automatic control and Optimization Theory»** — *IPU, Moscow, Russia*
Talk: «Stochastic Spectral and Conjugate Descent Methods» — *26 Mar. 2019*

**Seminar «Modern Optimization Methods»** *MIPT, Moscow, Russia*

Talk: «Stochastic Distributed Learning with Gradient Quantization and Variance Reduction» *25 Mar. 2019*

**Traditional School (Control, Information and Otimization)** *Voronovo, Moscow Region, Russia*

Poster: «Stochastic Spectral Descent Methods» *Jun. 2018*

**Optimization and Big Data Workshop** *KAUST, Thuwal, Saudi Arabia*

Poster: Stochastic Spectral Descent Methods *Feb. 2018*