# Dmitry Kovalev

## Personal Data


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| Google Scholar | https://scholar.google.com/citations?user=qHFA5z4AAAAJ |


## Education

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| 2014-2018 | BS in Applied Mathematics and Physics<br>**Moscow Institute of Physics and Technology**, Dolgoprudny, Russia<br>Advisor: Alexander Gasnikov |
| 2018-2019 | MS in Computer Science<br>**King Abdullah University of Science and Technology**, Thuwal, Saudi Arabia<br>Advisor: Peter Richtárik |
| 2018-2021 | MS in Applied Mathematics and Physics<br>**Moscow Institute of Physics and Technology**, Dolgoprudny, Russia<br>Advisor: Alexander Gasnikov |
| 2019-Now | PhD in Computer Science<br>**King Abdullah University of Science and Technology**, Thuwal, Saudi Arabia<br>Advisor: Peter Richtárik |

## Awards

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| 2021 | **CEMSE Research Excellence Award**, King Abdullah University of Science and Technology |
| 2021 | **Best Student Paper Award**, FL-ICML 2021 Workshop |
| 2021 | **Ilya Segalovich Scientific Prize**, Yandex |
| 2021 | **PhD progress marked as Outstanding**, King Abdullah University of Science and Technology |
| 2020 | **Ilya Segalovich Scientific Prize**, Yandex |
| 2018 | **Dean's Award**, King Abdullah University of Science and Technology |
| 2015-2017 | **Abramov's Fund Scholarship**, Moscow Institute of Physics and Technology |
| 2014 | **Asian Physics Olympiad (APhO), Honourable Mention**, Singapore |
| 2014 | **All-Russian School Physics Olympiad, Final Round Prize-Winner**, Saint-Petersburg |
| 2014 | **All-Russian School Programming Olympiad, Region Round Winner**, Moscow |
| 2014 | **All-Russian School Math Olympiad, Region Round Winner**, Moscow |
| 2012-2014 | **Russian President's Scholarship for High School Sudents** |
| 2012-2014 | **Moscow Governor's Scholarship for High School Sudents** |
| 2013 | **All-Russian School Physics Olympiad, Final Round Winner**, Vladivostok |
| 2012 | **All-Russian School Physics Olympiad, Final Round Prize-Winner**, Saransk |

## Research Interests

Optimization Algorithms
Distributed Optimization
Machine Learning

## Skills

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| Programming | C/C++, Python; Past experience: Go, C#, VB.NET, SQL, Julia |
| Computer | macOS, LaTeX, Git |
| Mathematics | Calculus, Linear Algebra, Probability and Statistics, Convex Analysis |

## Languages

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| English | Advanced Knowledge |
| Russian | Mothertongue |

## Publications

1. **Lower Bounds and Optimal Algorithms for Smooth and Strongly Convex Decentralized Optimization Over Time-Varying Networks** (Dmitry Kovalev, Elnur Gasanov, Peter Richtarik, Alexander Gasnikov), *NeurIPS 2021*
2. **An Optimal Algorithm for Strongly Convex Minimization under Affine Constraints** (Adil Salim, Laurent Condat, Dmitry Kovalev, Peter Richtarik), *AISTATS 2022*
3. **ADOM: Accelerated Decentralized Optimization Method for Time-Varying Networks** (Dmitry Kovalev, Egor Shulgin, Peter Richtarik, Alexander Rogozin, Alexander Gasnikov), *ICML 2021*
4. **IntSGD: Floatless Compression of Stochastic Gradients** (Konstantin Mishchenko, Bokun Wang, Dmitry Kovalev, Peter Richtarik), *ICLR 2022*
5. **A Linearly Convergent Algorithm for Decentralized Optimization: Sending Less Bits for Free!** (Dmitry Kovalev, Anastasia Koloskova, Martin Jaggi, Peter Richtarik, Sebastian U. Stich), *AISTATS 2021*
6. **Linearly Converging Error Compensated SGD** (Eduard Gorbunov, Dmitry Kovalev, Dmitry Makarenko, Peter Richtarik), *NeurIPS 2020*
7. **Optimal and Practical Algorithms for Smooth and Strongly Convex Decentralized Optimization** (Dmitry Kovalev, Adil Salim, Peter Richtarik), *NeurIPS 2020*
8. **From Local SGD to Local Fixed Point Methods for Federated Learning** (Grigory Malinovsky, Dmitry Kovalev, Elnur Gasanov, Laurent Condat, Peter Richtarik), *ICML 2020*
9. **Acceleration for Compressed Gradient Descent in Distributed and Federated Optimization** (Zhize Li, Dmitry Kovalev, Xun Qian, Peter Richtarik), *ICML 2020*
10. **Variance Reduced Coordinate Descent with Acceleration: New Method With a Surprising Application to Finite-Sum Problems** (Filip Hanzely, Dmitry Kovalev, Peter Richtarik), *ICML 2020*
11. **Stochastic Newton and Cubic Newton Methods with Simple Local Linear-Quadratic Rates** (Dmitry Kovalev, Konstantin Mishchenko, Peter Richtarik), *NeurIPS 2019 Workshop*
12. **Stochastic Proximal Langevin Algorithm: Potential Splitting and Nonasymptotic Rates** (Adil Salim, Dmitry Kovalev, Peter Richtarik), *NeurIPS 2019*
13. **Revisiting Stochastic Extragradient** (Konstantin Mishchenko, Dmitry Kovalev, Egor Shulgin, Peter Richtarik, Yura Malitsky), *AISTATS 2020*
14. **RSN: Randomized Subspace Newton** (Robert M. Gower, Dmitry Kovalev, Felix Lieder, Peter Richtarik), *NeurIPS 2019*
15. **Don't Jump Through Hoops and Remove Those Loops: SVRG and Katyusha are Better Without the Outer Loop** (Dmitry Kovalev, Samuel Horvath, Peter Richtarik), *ALT 2020*
16. **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*
17. **Stochastic Spectral and Conjugate Descent Methods** (Dmitry Kovalev, Eduard Gorbunov, Elnur Gasanov, Peter Richtarik), *NeurIPS 2018*

## Preprints

1. **Optimal Algorithms for Decentralized Stochastic Variational Inequalities** (Dmitry Kovalev, Aleksandr Beznosikov, Abdurakhmon Sadiev, Michael Persiianov, Peter Richtarik, Alexander Gasnikov), *arXiv preprint (February 2022)*
2. **Accelerated Primal-Dual Gradient Method for Smooth and Convex-Concave Saddle-Point Problems with Bilinear Coupling** (Dmitry Kovalev, Alexander Gasnikov, Peter Richtarik), *arXiv preprint (December 2021)*
3. **Near-Optimal Decentralized Algorithms for Saddle Point Problems over Time-Varying Networks** (Aleksandr Beznosikov, Alexander Rogozin, Dmitry Kovalev, Alexander Gasnikov), *arXiv preprint (July 2021)*
4. **Decentralized Distributed Optimization for Saddle Point Problems** (Alexander Rogozin, Alexander Beznosikov, Darina Dvinskikh, Dmitry Kovalev, Pavel Dvurechensky, Alexander Gasnikov), *arXiv preprint (February 2021)*
5. **Towards Accelerated Rates for Distributed Optimization over Time-varying Networks** (Alexander Rogozin, Vladislav Lukoshkin, Alexander Gasnikov, Dmitry Kovalev, Egor Shulgin), *arXiv preprint (September 2020)*
6. **Fast Linear Convergence of Randomized BFGS** (Dmitry Kovalev, Robert M. Gower, Peter Richtarik, Alexander Rogozin), *arXiv preprint (February 2020)*
7. **Distributed Fixed Point Methods with Compressed Iterates** (Selim Chraibi, Ahmed Khaled, Dmitry Kovalev, Peter Richtarik, Adil Salim, Martin Takac), *arXiv preprint (December 2019)*
8. **Accelerated methods for composite non-bilinear saddle point problem** (Mohammad Alkousa, Darina Dvinskikh, Fedor Stonyakin, Alexander Gasnikov, Dmitry Kovalev), *arXiv preprint (December 2019)*
9. **Stochastic Distributed Learning with Gradient Quantization and Variance Reduction** (Samuel Horvath, Dmitry Kovalev, Konstantin Mishchenko, Peter Richtarik, Sebastian U. Stich), *arXiv preprint (April 2019)*

Last Updated on March 21, 2022