Aleksandr Beznosikov

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Scholar arXiv

EDUCATION

Moscow Institute of Physics and Technology — **Moscow, Russia**
MSc in Applied Mathematics and Physics — *Sep 2020 – Present*

Moscow Institute of Physics and Technology — **Moscow, Russia**
BSc in Applied Mathematics and Physics — *Sep 2016 – Aug 2020*

- Thesis: "Distributed decentralized gradient-free methods for solving non-smooth stochastic convex optimization problems", Advisor: Alexander Gasnikov
- GPA – **3.99/4**, **4.99/5**, **9.35/10**

WORK EXPERIENCE

Moscow Institute of Physics and Technology — **Moscow, Russia**
Teaching assistant at the Department of Mathematical Fundamentals of Control — *Sep 2017 – Present*

International Laboratory of SA and HDI — **Moscow, Russia**
Research assistant — *Feb 2021 – Present*

RESEARCH INTERESTS

- Stochastic Optimization
- Distributed Optimization
- Machine Learning
- Federated Learning

COMPUTER SKILLS

- Programming Language: **Python, C#, C++, C, SQL**
- LaTeX
- Operating Systems: **Microsoft Windows**, **Linux**, **Mac OSX**

LANGUAGE

- **Russian:** [Mothertongue]
- **English:** [Upper Intermediate]

INTERESTS

- **Basketball**: Candidate Master of Sports in Russia

PUBLICATIONS

- A. Beznosikov, V. Samokhin, A. Gasnikov. **Distributed Saddle-Point Problems: Lower Bounds, Optimal Algorithms and Federated GANs**, arXiv preprint arXiv:2010.13112 (February 2021)
- A. Rogozin, A. Beznosikov, D. Dvinskikh, D. Kovalev, P. Dvurechensky, A. Gasnikov. **Decentralized Distributed Optimization for Saddle Point Problems**, arXiv preprint arXiv:2102.07758 (February 2021)
- E. Gorbunov, A. Rogozin, A. Beznosikov, D. Dvinskikh, A. Gasnikov. **Recent theoretical advances in decentralized distributed convex optimization**, arXiv preprint arXiv:2011.13259 (November 2020)
- A. Sadiev, A. Beznosikov, P. Dvurechensky, A. Gasnikov. **Zeroth-Order Algorithms for Smooth Saddle-Point Problems**, arXiv preprint arXiv:2009.09908 (September 2020)
- A. Bazarova, A. Beznosikov, A. Gasnikov. **Linearly Convergent Gradient-Free Methods for Minimization of Symmetric Parabolic Approximation**, arXiv preprint arXiv:2009.04906 (September 2020)
- A. Beznosikov, A. Sadiev, A. Gasnikov. **Gradient-Free Methods for Saddle-Point Problem**, published in Communications in Computer and Information Science (CCIS) series, arXiv preprint arXiv:2005.05913 (May 2020)
- A. Beznosikov, S. Horváth, P. Richtárik, M. Safaryan. **On Biased Compression for Distributed Learning**, arXiv preprint arXiv:2002.12410 (February 2020)
- A. Beznosikov, E. Gorbunov, A. Gasnikov. **Derivative-Free Method For Decentralized Distributed Non-Smooth Optimization**, published in IFAC-PapersOnLine, arXiv preprint arXiv:1911.10645 (November 2019)

CONFERENCE TALKS

- 15 July 2020, Mathematical Optimization Theory and Operations Research (MOTOR 2020), Novosibirsk, Russia (online), A. Beznosikov, A. Sadiev, A. Gasnikov "Gradient-Free Methods for Saddle-Point Problem"
- 12 July 2020, 21st IFAC World Congress 2020, Berlin, Germany (online), A. Beznosikov, E. Gorbunov, A. Gasnikov "Derivative-Free Method For Decentralized Distributed Non-Smooth Optimization"
- 2 December 2019, Quasilinear Equations, Inverse Problems and Their Applications 2019, Moscow, Russia, A. Beznosikov, E. Gorbunov, A. Gasnikov "A Derivative Free Method for Distributed Optimization"
- 23 November 2019, The 62th MIPT Conference, Moscow, Russia, A. Beznosikov, E. Gorbunov, A. Gasnikov "Derivative-Free Sliding For Distributed Optimization", **winner**
- 25 November 2017, The 60th MIPT Conference, Moscow, Russia, A. Beznosikov, K. Teimurazov "The problem of creating models of the electronic queue and student accounting system and their application in practice", **winner**

RESEARCH VISITS

- 2 August – 23 August 2020, Sirius University of Science and Technology, Sochi, Russia
- 9 January – 12 February 2020, Visual Computing Center, KAUST, Thuwal, Saudi Arabia (worked with Peter Richtárik)

GRANTS

- 30 million RUB per year, 2021-2024, Russian Science Foundation, project number 21-71-30005, joint grant with A. Gasnikov, P. Dvurechensky, F. Stonyakin, E. Gorbunov, A. Rogozin, D. Dvinskikh, D.

Kamzolov and groups of B. Polyak, A. Raigorodskii, Yu. Yevtushenko,
- 5 million RUB per year, 2019-2021, RFBR, project number 19-31-51001, joint grant with A. Gasnikov, F. Stonyakin, E. Gorbunov, A. Rogozin, D. Dvinskikh, A. Ivanova and D. Selikhanovych.

SCHOLARSHIPS, HONORS AND AWARDS

University *2016 - Present*

- **2021** 1st degree prof. Andrei Raigorodskii personal scholarship
- **Spring 2020-2021** Increased State Academic Scholarship for 4 year bachelor and master students at MIPT
- **Fall 2020-2021** Increased State Academic Scholarship for 4 year bachelor and master students at MIPT
- **2020** Gazprom Bank personal scholarship
- **2020** Moscow region government scholarship
- **2020** Personal merit scholarship at MIPT
- **Spring 2019-2020** Increased State Academic Scholarship for 4 year bachelor and master students at MIPT
- **Fall 2019-2020** Increased State Academic Scholarship for 4 year bachelor and master students at MIPT
- **Spring 2018-2019** Increased State Academic Scholarship for 4 year bachelor and master students at MIPT
- **Fall 2018-2019** Author of problems and organizer of the student olympiad in discrete mathematics
- **2017**: First Prize at MIPT's Team Mathematical Tournament
- **2017-2019**: Abramov scholarship for 1-3 year bachelor students with the best grades at MIPT

School *2016 and earlier*

- **2015**: Silver medal in IEPhO (International Experimental Physics Olympiad)
- **2014-2015**: Russian President's Scholarship, for high school student
- **2015**: Prize-Winner, All-Russian School Physics Olympiad, Final Round
- **2014**: Prize-Winner, All-Russian School Physics Olympiad, Final Round
- **2014-2015**: Russian President's Scholarship,for high school student
- **2015-2016**: Winner, All-Russian School Programming Olympiad, Region Round
- **2014-2016**: Winner, All-Russian School Physics Olympiad, Region Round
- **2014-2016**: Winner, All-Russian School Maths Olympiad, Region Round

TEACHING

Moscow Institute of Physics and Technology **Moscow, Russia**
Teaching assistant at the Department of Mathematical Fundamentals of Control *Sep 2017 - Present*

- Spring 2021: Stochastic process
- Fall 2020: Probability theory
- Fall 2020: Discrete analysis
- Spring 2020: Stochastic process
- Fall 2019: Probability theory
- Fall 2019: Discrete analysis
- Fall 2018: Discrete analysis
- Fall 2018: Databases
- Fall 2017: Databases

Summer school in Physics and Mathematics Lyceum **Syktyvkar, Russia**
Director, Head of teaching staff *Aug 2018, Aug 2019*

- Summer school for gifted children from provincial towns and villages