Abdurakhmon Sadiev

Personal Data

Place and Date of Birth:	Moscow, Russia | November 2, 1998
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Research Interests

Stochastic Optimization, Variational Inequalities.

Education

Sept. 2022 - Present	PhD in Computer Science **King Abdullah University of Science and Technology**, Thuwal, Saudi Arabia Advisor: Peter Richtárik
Sept. 2020 - July 2022	MS in Applied Mathematics and Physics **Moscow Institute of Physics and Technology**, Moscow, Russia Advisor: Alexander Gasnikov
Sept. 2016 - July 2020	BS in Applied Mathematics and Physics **Moscow Institute of Physics and Technology**, Moscow, Russia Advisor: Alexander Gasnikov

Publications and Preprints

1. **A. Sadiev**, M. Danilova, E Gorbunov, S Horváth, G. Gidel, P. Dvurechensky, A. Gasnikov and P. Richtárik
   High-Probability Bounds for Stochastic Optimization and Variational Inequalities: the Case of Unbounded Variance, arXiv preprint: arXiv:2302.00999;
   Status: Under review

2. M. Makarenko, E. Gasanov, R. Islamov, **A. Sadiev** and P. Richtárik
   Adaptive Compression for Communication-Efficient Distributed Training, arXiv preprint: arXiv:2211.00188;
   Status: Under review

3. **A. Sadiev**, D. Kovalev and P. Richtárik
   Communication Acceleration of Local Gradient Methods via an Accelerated Primal-Dual Algorithm with Inexact Prox, arXiv:2207.03957
   Status: Accepted toNeurIPS 2022

4. **A. Sadiev**, G. Malinovsky, E Gorbunov, I. Sokolov, A. Khaled, K. Burlachenko and P. Richtárik
   Federated Optimization Algorithms with Random Reshuffling and Gradient Compression, arXiv preprint: arXiv:2206.07021;
   Status: Under review

5. **A. Sadiev**, A. Beznosikov, AJ Almansoori, D Kamzolov, R. Tappenden and M. Takác
   Stochastic gradient methods with preconditioned updates, arXiv preprint: arXiv:2206.00285;
   Status: Under review

6. M. Alkousa, A. Gasnikov, P. Dvurechensky, **A. Sadiev** and L. Razouk
   An Approach for Non-convex Uniformly Concave Structured Saddle Point Problem, arXiv preprint arXiv:2202.06376;
   Status: Accepted to CRM

7. D. Kovalev, A. Beznosikov, **A. Sadiev**, M. Persiianov, P. Richtárik and A. Gasnikov
Optimal Algorithms for Decentralized Stochastic Variational Inequalities, arXiv preprint: arXiv:2202.02771
Status: Accepted to NeurIPS 2022

8. Z. Shi, **A. Sadiev**, N. Loizou, P. Richtárik and M. Takác
AI-SARAH: Adaptive and Implicit Stochastic Recursive Gradient Methods, arXiv preprint: arXiv:2102.09700
Status: Accepted to TMLR

9. **A. Sadiev**, E. Borodich , A. Beznosikov, D. Dvinskikh, S. Chezhegov, R. Tappenden, M. Takác and A. Gasnikov
Decentralized and Personalized Federated Learning, arXiv preprint arXiv:2107.07190; NeurIPS 2021, spotlight at workshop on Optimization for Machine Learning
Status: Accepted to EURO Journal on Computational Optimization

10. E. Borodich, A. Beznosikov, **A. Sadiev**, V. Sushko, N. Savelyev, M. Takác and A. Gasnikov
Decentralized Personalized Federated Min-Max Problems, arXiv preprint arXiv:2106.07289; NeurIPS 2021, poster at workshop on New Frontiers in Federated Learning: Privacy, Fairness, Robustness, Personalization and Data Ownership
Status: Under review.

11. E. Gladin, **A. Sadiev**, A. Gasnikov, P. Dvurechensky, A. Beznosikov and M. Alkousa
Solving smooth min-min and min-max problems by mixed oracle algorithms, arXiv preprint: arXiv:2103.00434
Status: Accepted to MOTOR-2021, published in Communications in Computer and Information Science (CCIS) series.

12. **A. Sadiev**, A. Beznosikov, P. Dvurechensky and A. Gasnikov
Zeroth-Order Algorithms for Smooth Saddle-Point Problems, arXiv preprint: arXiv:2009.09908
Status: Accepted to MOTOR-2021, published in Communications in Computer and Information Science (CCIS) series.

13. A. Beznosikov, **A. Sadiev** and A. Gasnikov
Gradient-Free Methods for Saddle-Point Problem, arXiv preprint: arXiv:2005.05913
Status: Accepted to MOTOR-2020, published in Communications in Computer and Information Science (CCIS) series.

Research Visiting

- February – July 2022, KAUST, Thuwal, Kingdom of Saudi Arabia (worked with Peter Richtárik)
- October – November 2021, MBZUAI, Abu Dhabi, United Arab Emirates (worked with Martin Takác)

Conference Presentations

- **July 5-10, 2021**, International conference on "Mathematical Optimization Theory and Operations Research" MOTOR-2021, Irkutsk, Russia.
- **July 6-11, 2020**, International conference on "Mathematical Optimization Theory and Operations Research" MOTOR-2020, Novosibirsk, Russia.

Awards & Scholarships

- **September 2022 - September 2025**: KAUST Discovery Doctoral Fellowship (KDDF), KAUST.
- **September 2022 - September 2025**: Dean's award, KAUST.
- **September 2021- December 2021**; Increased State Academic Scholarship for 4 year bachelor and master students at MIPT.

- **September 2021 - December 2021**; 2nd degree prof. Andrei Raigorodskii personal scholarship for contributions to the development of numerical optimization methods.
- **February 2021 - June 2021**; 3rd degree prof. Andrei Raigorodskii personal scholarship for contributions to the development of numerical optimization methods.
- **September 2020- December 2020**; Increased State Academic Scholarship for 4 year bachelor and master students at MIPT.
- **September 2018- December 2018**; Abramov scholarship for 1-3 year bachelor students with the best grades at MIPT.
- **February 2018 - June 2018**; Abramov scholarship for 1-3 year bachelor students with the best grades at MIPT.

Summer Schools

- **July-August, 2021**, Summer School on "Modern Methods of Information Theory, Optimization and Control Theory" (*Sirius University of Science and Technology*, Sochi, Russia)
- **June, 2021**, Summer School on "Control, Information and Optimization"
- **August, 2020**, Summer School on "Control, Information and Optimization" (*Sirius University of Science and Technology*, Sochi, Russia)
- **August, 2020**, Summer School on "Modern Methods of Information Theory, Optimization and Control Theory" (*Sirius University of Science and Technology*, Sochi, Russia)

Computer Skills

Operating Systems:	Mac OSX, Microsoft Windows, Linux
Programming Languages:	Python, LaTeX, C, C++

Languages

Russian:	Native speaker
English:	Advanced

Other Interests

Chess: 5 years in chess school in Moscow, Russia. Now I am playing chess online. Theater: 4 years in school theater. Science, Technology, Cinematography.