

Rustem Islamov

+41-76-297-28-50 | rustem.islamov@unibas.ch | [rustem-islamov.github.io](https://github.com/rustem-islamov) | [Linkedin](#) | [Google Scholar](#)

EDUCATION

PhD in Computer Science

University of Basel, Supervisor: [Aurelien Lucchi](#)

Oct. 2023 – Pres.

Basel, Switzerland

Master of Science in Applied Mathematics

Institut Polytechnique de Paris

Sept. 2021 – Aug. 2023

Palaiseau, France

Supervisor: [Olivier Fercoq](#), Thesis supervisor: [Dan Alistarh](#)

GPA: 17.65/20, [transcript of records](#)

Bachelor of Science in Applied Mathematics and Physics

Moscow Institute of Physics and Technology

Sept. 2017 – July 2021

Dolgoprudny, Russia

Supervisor: [Peter Richtárik](#),

GPA: 4.95/5 (9.27/10), Top 3 at the department, [transcript of records](#)

RESEARCH INTERESTS

Deep Learning (loss landscape of neural networks), Optimization (adaptive algorithms, optimization for deep learning, differential privacy, distributed optimization, bilevel optimization)

INTERNSHIPS

Internship at Distributed Algorithms and Systems Lab

IST Austria, Supervisors: [Mher Safaryan](#), [Dan Alistarh](#)

Apr. 2023 – Oct. 2023

Klosterneuburg, Austria

Internship at Machine Learning and Optimization Lab

EPFL, Supervisors: [Hadrien Hendrikx](#), [Martin Jaggi](#)

Apr. 2022 – Aug. 2022

Lausanne, Switzerland

Internship at Optimization and Machine Learning Lab

KAUST, Supervisor: [Peter Richtárik](#)

Mar. 2021 – Aug. 2021

Jul. 2020 – Dec. 2020

Thuwal, Saudi Arabia

SCHOLARSHIPS, HONORS AND AWARDS

University of Basel Travel Fund

1100 Swiss Francs to cover travel costs at EUROPT 2025; merit-based

Aug. 2025

ICLR 2025 Financial Assistance

425 US Dollars to cover registration fee; merit-based

Apr. 2025

NeurIPS@Paris Workshop Travel Grant

450 Euros to cover the travel expenses during the workshop; merit based

Dec. 2024

PhD Track Excellence Scholarship

IP Paris awards merit-based excellence scholarships for students enrolled in PhD tracks;

1000 Euro per month

Sept. 2021 – Mar. 2022

Sept. 2022 – Mar. 2023

French Embassy Scholarship

Given to students enrolled to French universities with high academic achievements; 700 Euro per month

Sept. 2022 – May. 2023

PhD Track Excellence Scholarship

IP Paris awards merit-based excellence scholarships for students enrolled in PhD tracks;

1000 Euro per month

Sept. 2021 – Mar. 2022

Sept. 2022 – Mar. 2023

Increased State Academic Scholarship

Given to 4 year Bachelor and Master students at MIPT with scientific achievements;

16,000 Russian roubles per month

Feb. 2021 – June 2021

Sept. 2020 – Jan. 2021

Prizewinner of Student Olympiad in Maths

“I am professional” Student Olympiad organized by Yandex and MIPT

Apr. 2020

Abramov scholarship

Given to 1-3 year Bachelor students with the best grades at MIPT; 12,000 Russian rubles per month

Sept. 2017 – June 2020

Prizewinner of Final Round of All-Russian Physics Olympiad

Apr. 2016

Participant of Final Round of All-Russian Physics Olympiad

2015, 2017

17. R. Islamov, N. Ajroldi, A. Orvieto, A. Lucchi. **Enhancing Optimizer Stability: Momentum Adaptation of NGN Step-size**, in [Advances in Neural Information Processing Systems](#), 2025.
16. E. M. Compagnoni, R. Islamov, A. Orvieto, E. Gorbunov. **On the Interaction of Noise, Compression Role, and Adaptivity under ϵ -Smoothness: An SDE-based Approach**, [High-dimensional Learning Dynamics Workshop at ICML](#), 2025.
15. R. Islamov, Y. As, I. Fatkhullin. **Safe-EF: Error Feedback for Non-smooth Constrained Optimization**, In [Proc. of 42nd International Conference on Machine Learning](#), 2025.
14. R. Islamov, S. Horváth, A. Lucchi, P. Richtárik, E. Gorbunov. **Double Momentum and Error Feedback for Clipping with Fast Rates and Differential Privacy**, [arXiv preprint arXiv: 2502.11682](#), 2025.
13. E. M. Compagnoni, R. Islamov, F. N. Proske, A. Lucchi. **Unbiased and Sign Compression in Distributed Learning: Comparing Noise Resilience via SDEs**, in [Proc. of the 28th International Conference on Artificial Intelligence and Statistics](#), (Oral), 2025.
12. E. M. Compagnoni, T. Liu, R. Islamov, F. N. Proske, A. Orvieto, A. Lucchi. **Adaptive Methods through the Lens of SDEs: Theoretical Insights on the Role of Noise**, in [Proc. of the 13th International Conference on Learning Representations](#), 2024.
11. R. Islamov, N. Ajroldi, A. Orvieto, A. Lucchi. **Loss Landscape Characterization of Neural Networks without Over-Parametrization**, in [Advances in Neural Information Processing Systems](#), 2024.
10. R. Islamov*, Y. Gao*, S. Stich (*equal contribution). **Towards Faster Decentralized Stochastic Optimization with Communication Compression**, in [Proc. of the 13th International Conference on Learning Representations](#), 2024.
9. Y. Gao*, R. Islamov*, S. Stich (*equal contribution). **EControl: Fast Distributed Optimization with Compression and Error Control**, in [Proc. of the 12th International Conference on Learning Representations](#), 2023.
8. R. Islamov, M. Safaryan, D. Alistarh. **AsGrad: A Sharp Unified Analysis of Asynchronous-SGD Algorithms**, in [Proc. of the 27th International Conference on Artificial Intelligence and Statistics](#), 2023.
7. K. Mishchenko, R. Islamov, E. Gorbunov, S. Horváth. **Partially Personalized Federated Learning: Breaking the Curse of Data Heterogeneity**, [Transactions on Machine Learning Research](#), 2023.
6. S. Khirirat, E. Gorbunov, S. Horváth, R. Islamov, F. Karray, P. Richtárik. **Clip21: Error Feedback for Gradient Clipping**, [arXiv preprint arXiv: 2305.18929](#), 2023.
5. M. Makarenko, E. Gasanov, R. Islamov, A. Sadiev, P. Richtárik. **Adaptive Compression for Communication-Efficient Distributed Training**, [Transactions on Machine Learning Research](#), 2022.
4. R. Islamov, X. Qian, S. Hanzely, M. Safaryan, P. Richtárik. **Distributed Newton-Type Methods with Communication Compression and Bernoulli Aggregation**, [Transactions on Machine Learning Research](#), 2022.
3. X. Qian, R. Islamov, M. Safaryan, P. Richtárik. **Basis Matters: Better Communication-Efficient Second Order Methods for Federated Learning**, in [Proc. of the 25th International Conference on Artificial Intelligence and Statistics](#), 2022.
2. M. Safaryan, R. Islamov, X. Qian, P. Richtárik. **FedNL: Making Newton-Type Methods Applicable to Federated Learning**, In [Proc. of 39th International Conference on Machine Learning](#), 2022.
1. R. Islamov, X. Qian, P. Richtárik. **Distributed Second Order Methods with Fast Rates and Compressed Communication**, In [Proc. of 38th International Conference on Machine Learning](#), 2021.

REVIEWING AND TEACHING

Teaching Assistant for Continuous Optimization course	Spring Semester 2024
Reviewer for Transactions on Machine Learning Research	2023-2024
Reviewer for Conference on Neural Information Processing Systems	2024
Reviewer for International Conference on Machine Learning (ICML)	2024-2025
Reviewer for Journal on Machine Learning Research (JMLR)	2024-2025
Reviewer for Journal of Parallel and Distributed Computing (JPDC)	2024
Reviewer for Journal of Optimization Theory and Applications (JOTA)	2023

Reviewer for Artificial Intelligence and Statistics Conference (AISTATS)	2023-2025
Reviewer for Neural Information Processing Systems (NeurIPS)	2024-2025
Reviewer for International Conference on Learning Representations (ICLR)	2024-2025

TALKS AND POSTERS

Invited Talk at EUROPT Conference, Links: paper	29 June-2 July, 2025
Invited Talk at Rising Stars in AI Symposium at KAUST workshop, Links: paper , slides	21 February, 2024
Talk at NTDS workshop, Links: paper	24 October, 2023
Talk at CISPA for the group of Prof. Sebastian Stich , Links: paper	16 March, 2023
Talk at ETH AI Center Symposium for PhD fellows, Links: paper	9-10 February, 2023
Prerecorded Talk at KAUST Conference on Artificial Intelligence , Links: video , paper	28 April, 2021

TECHNICAL SKILLS

Programming Languages:	Python (NumPy, Matplotlib, PyTorch, Pandas), C++, LaTeX
Mathematics:	Calculus, Linear Algebra, Probability Theory, Convex Analysis, Deep Learning

LANGUAGES

Russian:	Native
English:	Advanced (C1)
French:	Elementary (A2)

HOBBIES AND INTERESTS

Football, former member of student football team
Travelling, hiking, photo shooting