Eduard Gorbunov

Tenure-Track Assistant Professor of Statistics and Data Science, MBZUAI, Abu Dhabi, UAE

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At a Glance

METRICS

Google Scholar 3,812 citations
h-index / i10 35 / 55

Since 2021: 3,549 citations, h-index 33, i10-index 51. Metrics checked July 2026.

PUBLICATION RECORD

- 74 website-listed publications
- 50 conference papers
- 15 journal papers
- 7 arXiv preprints
- 2 reference entries
- 65 talks and posters

COLLABORATION FOOTPRINT

- 109 publication collaborators
- 30+ universities/research institutes
- 3+ companies/industrial labs

RESEARCH AREAS

- Stochastic optimization
- Distributed and federated learning
- Heavy-tailed noise and clipping
- Variational inequalities
- Adaptive and communication-efficient training

RECOGNITION

- ICML 2024 oral
- NeurIPS 2024 spotlight
- NeurIPS 2020 spotlight
- Ilya Segalovich Award, 2019
- Outstanding reviewer: NeurIPS, ICML, ICLR

Professional Experience

2025–now Tenure-Track Assistant Professor, Statistics and Data Science, Mohamed bin Zayed University of Artificial Intelligence.

2024–2025 Research Scientist, Machine Learning Department, MBZUAI.

2022–2024 Postdoctoral Fellow, Machine Learning Department, MBZUAI; hosted by Samuel Horváth and Martin Takáč.

2020–2022 Junior Researcher, MIPT/HSE/Yandex Research; Research Consultant, Mila, Montreal.

2017–2020 Research positions and internships with Peter Richtárik's group, Huawei–MIPT, IITP RAS, RANEPA–MIPT, and KAUST Visual Computing Center.

Education

2021 PhD in Computer Science, Moscow Institute of Physics and Technology. Thesis: *Distributed and Stochastic Optimization Methods with Gradient Compression and Local Steps*. Advisors: Alexander Gasnikov and Peter Richtárik.

2020 MSc in Applied Mathematics and Physics, Moscow Institute of Physics and Technology.

2018 BSc in Applied Mathematics and Physics, Moscow Institute of Physics and Technology.

Research Profile

I develop stochastic and distributed optimization algorithms for machine learning, with emphasis on provable and practical behavior under heavy-tailed noise, communication constraints, local steps, compression, adaptivity, and federated or decentralized systems. Recent work connects clipping, Adam/AdaGrad-type normalization, LMO-based/Muon-type methods, and high-probability and last-iterate analysis to modern training regimes.

Selected Recent Publications

Tags: $*$ equal contribution; † shared senior authorship; mentored/supervised author markers: ^{B} BSc, ^{M} MSc, ^{P} PhD, ^{R} RA/Postdoc, ^{T} Team Member, ^{V} Visiting Student.

1. A. Shestakov^{M}, M. Takáč, E. Gorbunov. **From Optimization to Generalization under Heavy-Tailed Data: The Role of Gradient Clipping**. ICML 2026.
2. E. Shulgin^{V}, M. Awad^{T}, P. Richtárik, E. Gorbunov. **General Analysis of LMO-based Optimizers: Beyond Bounded Variance**. ICML 2026.
3. R. Islamov^{V}, R. Machacek, A. Lucchi, A. Silveti-Falls, E. Gorbunov†, V. Cevher†. **On the Role of Batch Size in Stochastic Conditional Gradient Methods**. ICML 2026.
4. S. Chezhegov^{P}, D. A. Parletta, A. Paudice, E. Gorbunov. **High-Probability Bounds for the Last Iterate of Clipped SGD**. ICLR 2026.
5. S. Khirirat, A. Sadiev^{P}, A. Riabinin, E. Gorbunov, P. Richtárik. **Error Feedback under (L_0, L_1)-Smoothness: Normalization and Momentum**. NeurIPS 2025.
6. S. V. Khah^{M}, S. Chezhegov^{P}, S. Farahmand, S. Horváth, E. Gorbunov. **Differentially Private Clipped-SGD: High-Probability Convergence with Arbitrary Clipping Level**. AISTATS 2026.
7. S. Chezhegov^{P}, Y. Klyukin, A. Semenov, A. Beznosikov, A. Gasnikov, S. Horváth, M. Takáč, E. Gorbunov. **Clipping Improves Adam-Norm and AdaGrad-Norm when the Noise Is Heavy-Tailed**. ICML 2025.

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Mentoring & Service

CURRENT TEAM

- 4 MSc students at MBZUAI
- 4 recent visiting students
- Current/recent team members already appear as coauthors in 2026 ICML/UAI papers

EXTERNAL MENTORING

- 27 unique externally mentored publication contributors in the full-CV role markers
- Breakdown: 2 BSc, 14 MSc, 8 PhD, 3 Research Assistant/Postdoc
- Publication outcomes at AISTATS, ICML, ICLR, NeurIPS, CPAL, EMNLP, MOTOR, and IFAC

TEACHING

- ML804 Advanced Topics in Continuous Optimization, PhD, MBZUAI
- MTH702 Optimization, MSc, MBZUAI
- Optimization Methods for Machine Learning, MIPT/MADE
- TA/lecturer contributions to ML712 Distributed and Federated Learning

EDITORIAL SERVICE

- TMLR Action Editor
- Area Chair: NeurIPS, ICLR, ICML
- Co-organizer: ICOMP
- Reviewer for JMLR, Mathematical Programming, SIMODS, SIOPT, TMLR, NeurIPS, ICML, ICLR, AISTATS, NETYS

Selected Foundational and High-Visibility Publications

Tags: $*$ equal contribution; † shared senior authorship; mentored/supervised author markers: [B] BSc, [M] MSc, [P] PhD, [R] RA/Postdoc, [T] Team Member, [V] Visiting Student.

1. E. Gorbunov*, N. Tupitsa*[R], S. Choudhury[P], A. Aliev[M], P. Richtárik, S. Horváth, M. Takáč. **Methods for Convex (L_0, L_1)-Smooth Optimization: Clipping, Acceleration, and Adaptivity**. ICLR 2025.
2. E. Gorbunov, A. Sadiev[P], M. Danilova, S. Horváth, G. Gidel, P. Dvurechensky, A. Gasnikov, P. Richtárik. **High-Probability Convergence for Composite and Distributed Stochastic Minimization and Variational Inequalities with Heavy-Tailed Noise**. ICML 2024 oral.
3. K. Mishchenko, E. Gorbunov, M. Takáč, P. Richtárik. **Distributed Learning with Compressed Gradient Differences**. Optimization Methods and Software 2025.
4. E. Gorbunov, M. Danilova, A. Gasnikov. **Stochastic Optimization with Heavy-Tailed Noise via Accelerated Gradient Clipping**. NeurIPS 2020.
5. E. Gorbunov, S. Horváth, P. Richtárik, G. Gidel. **Variance Reduction is an Antidote to Byzantine Workers: Better Rates, Weaker Assumptions and Communication Compression as a Cherry on the Top**. ICLR 2023.
6. E. Gorbunov, N. Loizou, G. Gidel. **Extragradient Method: $\mathcal{O}(1/k)$ Last-Iterate Convergence for Monotone Variational Inequalities and Connections with Cocoercivity**. AISTATS 2022.
7. M. Ryabinin*, E. Gorbunov*, V. Plokhotnyuk, G. Pekhimenko. **Moshpit SGD: Communication-Efficient Decentralized Training on Heterogeneous Unreliable Devices**. NeurIPS 2021.
8. E. Gorbunov, K. Burlachenko[P], Z. Li, P. Richtárik. **MARINA: Faster Nonconvex Distributed Learning with Compression**. ICML 2021.
9. E. Gorbunov, D. Kovalev, D. Makarenko[P], P. Richtárik. **Linearly Converging Error Compensated SGD**. NeurIPS 2020 spotlight.
10. E. Gorbunov, F. Hanzely, P. Richtárik. **A Unified Theory of SGD: Variance Reduction, Sampling, Quantization and Coordinate Descent**. AISTATS 2020.

Current Team

- **MSc students at MBZUAI:** Bilal Ashfaq (co-supervised with Nils Lukas), Mohamed Ayman Mohamed Mohamed Awad, Saurabh Singh, Viktor Kovalchuk (co-supervised with Martin Takáč); all 2025/09–present.
- **Visiting students:** Igor Ignashin (2026/01–2026/03), Savelii Chezhegov (2026/01–2026/03), Rustem Islamov (2025/12–2026/02), Egor Shulgin (2025/10–2025/11).

Talks, Visibility, and Collaborations

- 65 talks and posters, including an ICML 2024 oral presentation, invited/keynote talks at NETYS, INSAIT, Federated Learning One-World Seminar, MBZUAI Workshop on Collaborative Learning, MLO EPFL, MTL MLOpt, KAUST Rising Stars in AI Symposium, and Russian Optimization Seminar.
- Research visits or collaborations with Mila, KAUST, SIERRA/INRIA, MIPT, EPFL, University of Toronto, HSE, Yandex Research, and other international groups.