

# ARTEM RIABININ

Thuwal, Saudi Arabia

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## About me

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I am currently an MS/PhD student working on optimization for machine learning and deep learning at King Abdullah University of Science and Technology (KAUST), advised by professor Peter Richtárik. My past research interests and experience lie in applied mathematics, including numerical methods, inverse ill-posed problems and their applications. For example, I have worked on processing images obtained by laser radars.

## Interests

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Mathematical and Algorithmic Foundations of Machine Learning, Optimization for Machine Learning and Deep Learning, Federated Learning, Numerical Methods, Inverse and Ill-Posed Problems.

## Education

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### King Abdullah University of Science and Technology (KAUST)

Aug. 2023 – Present

*MS/PhD program in Applied Mathematics and Computer Science*

*Thuwal, Saudi Arabia*

Current GPA: 4.00/4.00.

Main courses: Deep Learning, Machine Learning, SGD Methods, Online Learning, Numerical Linear Algebra.

Topic: Optimization for Machine Learning, group of professor Peter Richtárik.

### Lomonosov Moscow State University (MSU)

Sep. 2019 – May 2023

*Bachelor of Science in Physics and Applied Mathematics*

*Moscow, Russia*

Graduated with honours (GPA 4.88/5.00).

Main courses: Numerical Methods, Functional Analysis, Probability Theory and Statistics, Stochastic Processes.

Thesis: On the matching of regularization parameters with different types of measurement data errors.

### Moscow Institute of Physics and Technology (MIPT)

Sep. 2017 – May 2019

*School education*

*Moscow, Russia*

Graduated with honours (GPA 5.00/5.00).

## Work Experience

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### AI/ML Internship at Aramco

Jun. 2024 – Aug. 2024

*ML Engineer Intern*

*Dhahran, Saudi Arabia*

During my internship at Aramco, I was responsible for enhancing permeability modeling in reservoir simulations by implementing various machine learning techniques, including semi-supervised co-training algorithms, encoder-decoder architectures, and data augmentation strategies.

### Laboratory of Image Processing at Lomonosov Moscow State University

Sep. 2021 – May 2023

*Laboratory assistant*

*Moscow, Russia*

For the period of my work at Lomonosov Moscow State University, I conducted research on the comparison of various regularization methods for solving image processing problems, working within a group led by professor Anatoly Yagola.

## Publications and Preprints

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### Communication-efficient Algorithms Under Generalized Smoothness Assumptions

2024

*Sarit Khirirat, Abdurakhmon Sadiev, Artem Riabinin, Eduard Gorbunov, Peter Richtárik*

NeurIPS 2024 Workshop, under review for ICLR 2025, GitHub Repository.

### Weighted Gradient Diversity and a Theory of Adaptive Stepsizes for SGD

2024

*Peter Richtárik, Artem Riabinin*

Under review.

## Technical Skills

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**Languages:** Russian (native), English (fluent)

**Programming:** Python, MATLAB, C++ (basic), R(basic)

**Python libraries:** NumPy, SciKit-Learn, PyTorch, JAX, Pandas, Matplotlib, SciPy

**Software:** Jupyter Notebook, Git, LATEX