

# Artavazd Maranjyan

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## Education

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- **Ph.D. in Computer Science** **Thuwal, Saudi Arabia**  
2023 – Present  
*King Abdullah University of Science and Technology (KAUST)*  
Advisor: [Peter Richtárik](#)
- **M.Sc. in Applied Statistics and Data Science** **Yerevan, Armenia**  
2021 – 2023  
*Yerevan State University*  
■ Thesis: On local training methods; co-supervisors: [Peter Richtárik](#), [Mher Safaryan](#)
- **B.Sc. in Informatics and Applied Mathematics** **Yerevan, Armenia**  
2017 – 2021  
*Yerevan State University*  
■ Thesis: On the Convergence of Series in Classical Systems; supervisor: [Martin Grigoryan](#)

## Academic Experiences

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- **Researcher in the group of [Martin Grigoryan](#)** **Yerevan, Armenia**  
April 2023 – Aug 2023  
*Yerevan State University*
  - Studied the existence and properties of universal functions with respect to the Vilenkin and Haar systems across various functional spaces
- **Machine Learning Researcher** **Yerevan, Armenia**  
March 2023 – Aug 2023  
*YerevaNN*
  - Worked on the intersection of Federated Learning and Optimization
- **Internship in the group of [Peter Richtárik](#)** **Thuwal, Saudi Arabia**  
June 2022 – Jan 2023  
*King Abdullah University of Science and Technology (KAUST)*
  - Worked on the "GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity" paper
- **Machine Learning Researcher** **Yerevan, Armenia**  
Jan 2022 – June 2022  
*YerevaNN*
  - Worked on the intersection of Federated Learning and Optimization

## Industry Experiences

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- **Co-Founder** **Yerevan, Armenia**  
July 2021 – June 2022  
*OnePick*

OnePick is an emerging startup that provides up-to-date and customized social media posts based on page and market data analysis

  - Winner idea of [InVent 2.0](#) venture building program organized by [FAST](#)
- **Backend Developer** **Yerevan, Armenia**  
July 2021 – Sep 2021  
*EXALT Technologies Ltd*
  - Worked for Nutanix.
- **Machine Learning Research Engineer** **Yerevan, Armenia**  
June 2021 – July 2021  
*Foundation for Armenian Science and Technology (FAST)*

- Worked on Fraud detection
- Made data-driven forecasts using machine learning algorithms and statistical models

## Software Engineer in Test

Yerevan, Armenia

Sep 2019 – Jan 2021

### Picsart

- Worked with automation team to design and develop automated solutions across several mobile/web applications
- Worked directly with software developers, test engineers, product owners, business analysts to find and resolve issues
- Worked closely with DevOps to suggest improvements in processes and in Jenkins Continuous Integration cycle

## Awards

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### Dean's Award

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

Sep 2023

Awarded to a few top students accepted to KAUST (6000\$ annually for 3 years)

### Outstanding Final Project Award

#### Yerevan State University

May 2021

Recognized for the Bachelor's thesis (awarded to 6 students among 250+ students)

## Publications (in reverse order of preparation)

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- ATA: Adaptive Task Allocation for Efficient Resource Management in Distributed Machine Learning**  
Artavazd Maranjyan, El Mehdi Saad, Peter Richtárik, Francesco Orabona  
Submitted to ICML 2025
- Ringmaster ASGD: The First Asynchronous SGD with Optimal Time Complexity**  
Artavazd Maranjyan, Alexander Tyurin, Peter Richtárik  
[arXiv:2412.17054](#), 2025
- MindFlayer: Efficient Asynchronous Parallel SGD in the Presence of Heterogeneous and Random Worker Compute Times**  
Artavazd Maranjyan, Omar Shaikh Omar, Peter Richtárik  
OPT 2024: Optimization for Machine Learning (NeurIPS workshop)  
(**Oral, Top 5%**)
- Differentially Private Random Block Coordinate Descent**  
Artavazd Maranjyan, Abdurakhmon Sadiev, Peter Richtárik  
OPT 2024: Optimization for Machine Learning (NeurIPS workshop)
- LoCoDL: Communication-Efficient Distributed Learning with Local Training and Compression**  
Laurent Condat, Artavazd Maranjyan, Peter Richtárik  
ICLR 2025: The Thirteenth International Conference on Learning Representations
- Menshov-type theorem for divergence sets of sequences of localized operators**  
Martin Grigoryan, Anna Kamont, Artavazd Maranjyan  
[Journal of Contemporary Mathematical Analysis](#), vol. 58, no. 2, pp. 81–92, 2023
- GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity**  
Artavazd Maranjyan, Mher Safaryan, Peter Richtárik  
[arXiv:2210.16402](#), 2022

## 2. On the divergence of Fourier series in the general Haar system

Martin Grigoryan, Artavazd Maranjyan

*Armenian Journal of Mathematics*, vol. 13, pp. 1–10, 2021

## 1. On the unconditional convergence of Faber-Schauder series in $L^1$

Tigran Grigoryan, Artavazd Maranjyan

*Proceedings of the YSU A: Physical and Mathematical Sciences*, vol. 55, no. 1 (254), pp. 12–19, 2021

## Academic and Professional Involvement

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### Reviewer

SIAM Journal on Mathematics of Data Science (SIMODS) 2024

Transactions on Machine Learning Research (TMLR) 2024

The Journal of Machine Learning Research (JMLR) 2024

### Mentorship

Co-mentored a group of schoolgirls from diverse backgrounds and grades on a STEM project. The students conducted chemical experiments and developed an educational website to document and share their findings. I primarily supported the website's creation. [View the website](#) [certificate]

### Organized weekly group seminars

KAUST

KAUST, Saudi Arabia

Sep 2023 - Dec 2023

## Talks and Poster Presentations

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2024 Talks and Poster Presentations.....

15. **Workshop on Optimization for Machine Learning (NeurIPS 2024)** **Vancouver, Canada**  
*Vancouver Convention Center* *December 15, 2024*  
Presenting
  - **MindPlayer: Efficient Asynchronous Parallel SGD in the Presence of Heterogeneous and Random Worker Compute Times (Oral, Top 5%)** [video]
  - **Differentially Private Random Block Coordinate Descent**
  - **LoCoDL: Communication-Efficient Distributed Learning with Local Training and Compression**
14. **MLR Weekly Seminar** **Online**  
*Machine Learning Research at Apple* *November 21, 2024*  
Invited by **Samy Bengio** to give a talk on **MindPlayer: Efficient Asynchronous Parallel SGD in the Presence of Heterogeneous and Random Worker Compute Times** [slides]
13. **International Conference on Algebra, Logic, and their Applications** **Online**  
*Yerevan State University* *October 18, 2024*  
Delivered a talk on **MindPlayer: Efficient Asynchronous Parallel SGD in the Presence of Heterogeneous and Random Worker Compute Times**
12. **CEMSE E-Poster Competition** **KAUST, Saudi Arabia**  
*KAUST* *October 10, 2024*  
Awarded 3rd place for presenting a poster on **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity**.
11. **Analysis, PDEs and Applications** **Yerevan, Armenia**  
*Yerevan State University* *July 6, 2024*  
Delivered a talk on **MindPlayer: Efficient Asynchronous Parallel SGD in the Presence of Heterogeneous and Random Worker Compute Times** [abstract]

10. **Stochastic Numerics and Statistical Learning** KAUST, Saudi Arabia  
 KAUST May 27, 2024  
 Presented a poster on **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity** [poster]
9. **CS 331: Stochastic Gradient Descent Methods** KAUST, Saudi Arabia  
 KAUST May 5, 2024  
 Delivered a guest lecture on **MindFlayer: Efficient Asynchronous Parallel SGD in the Presence of Heterogeneous and Random Worker Compute Times**
8. **The Machine Learning Summer School in Okinawa 2024** Okinawa, Japan  
 Okinawa Institute of Science and Technology (OIST) March 13, 2024  
 Presented a poster on **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity** [poster]
7. **KAUST Rising Stars in AI Symposium 2024** KAUST, Saudi Arabia  
 KAUST February 21, 2024  
 Presented a poster on **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity** [poster]

#### 2023 Talks and Poster Presentations.....

6. **Group Seminar** KAUST, Saudi Arabia  
 KAUST November 16, 2023  
 Delivered a talk on **Differentially Private Coordinate Descent for Composite Empirical Risk Minimization**
5. **Algorithms & Computationally Intensive Inference seminars** Coventry, England  
 University of Warwick October 6, 2023  
 Delivered a talk on **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity** [slides]
4. **Mathematics in Armenia: Advances and Perspectives** Yerevan, Armenia  
 Yerevan State University July 5, 2023  
 Delivered a talk on **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity** [abstract]
3. **Machine Learning Reading Group Yerevan** Yerevan, Armenia  
 Yerevan State University March 10, 2023  
 Delivered a talk on **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity** [video (Armenian)]

#### 2022 Talks and Poster Presentations.....

2. **Federated Learning One World Seminar (FLOW)** Online  
 Online December 7, 2022  
 Delivered a talk on **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity** [video]
1. **Machine Learning Reading Group Yerevan** Yerevan, Armenia  
 Yerevan State University April 10, 2022  
 Delivered a talk on **ProxSkip: Yes! Local Gradient Steps Provably Lead to Communication Acceleration! Finally!**

## Hobbies

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Ultimate Frisbee, Dancing (bachata, salsa), [Board Games](#), Table Football (Foosball)