

# Artavazd Maranjyan

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## Education

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

## Academic Experiences

- **Research visit to Yi-Shuai Niu** **Beijing, China**  
*Beijing Institute of Mathematical Sciences and Applications (BIMSA)*  
9-22 March 2025
  - Gave talks at three universities (PKU, BUAA, BIMSA).
  - Collaborated with Professor Yi-Shuai Niu on a project on Server-Assisted Federated Learning.
- **Researcher in the group of Martin Grigoryan** **Yerevan, Armenia**  
*Yerevan State University*  
April 2023 – Aug 2023
  - 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**  
*YerevaNN*  
March 2023 – Aug 2023
  - Worked on the intersection of Federated Learning and Optimization
- **Internship in the group of Peter Richtárik** **Thuwal, Saudi Arabia**  
*King Abdullah University of Science and Technology (KAUST)*  
June 2022 – Jan 2023
  - Worked on the "GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity" paper
- **Machine Learning Researcher** **Yerevan, Armenia**  
*YerevaNN*  
Jan 2022 – June 2022
  - Worked on the intersection of Federated Learning and Optimization

## Industry Experiences

- **Co-Founder** **Yerevan, Armenia**  
*OnePick*  
July 2021 – June 2022  
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**  
*EXALT Technologies Ltd*  
July 2021 – Sep 2021
  - Worked for Nutanix.
- **Machine Learning Research Engineer** **Yerevan, Armenia**  
*Foundation for Armenian Science and Technology (FAST)*  
June 2021 – July 2021

- 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  
[arXiv:2502.00775](#), 2025
- Ringmaster ASGD: The First Asynchronous SGD with Optimal Time Complexity**  
Artavazd Maranjyan, Alexander Tyurin, Peter Richtárik  
[arXiv:2501.16168](#), 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 presentation (top 5% of 107 submissions)
- 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*  
Spotlight presentation (top 5.1% of the submitted papers)
- 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. [[website](#)] [[certificate](#)]

### Organized weekly group seminars

KAUST

KAUST, Saudi Arabia

Sep 2023 - Dec 2023

## Talks and Poster Presentations

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### 2025 Talks and Poster Presentations.....

19. **Academic Report of the School of Mathematical Sciences** Beijing, China  
*Beihang University (BUAA)* March 17, 2025  
Invited by **Jiaxin Xie** to give a talk on **Ringmaster ASGD: The First Asynchronous SGD with Optimal Time Complexity** [[slides](#)]
18. **Optimization Seminar** Beijing, China  
*BIMSA* March 13, 2025  
Invited by **Yi-Shuai Niu** to give a talk on **Ringmaster ASGD: The First Asynchronous SGD with Optimal Time Complexity** [[slides](#)]
17. **Seminar** Beijing, China  
*Peking University* March 12, 2025  
Invited by **Kun Yuan** to give a talk on **Ringmaster ASGD: The First Asynchronous SGD with Optimal Time Complexity** [[slides](#)]
16. **AMCS/STAT graduate seminar** KAUST, Saudi Arabia  
*KAUST* February 27, 2025  
Delivered a talk on **Ringmaster ASGD: The First Asynchronous SGD with Optimal Time Complexity** [[slides](#)]

### 2024 Talks and Poster Presentations.....

15. **Workshop on Optimization for Machine Learning (NeurIPS 2024)** Vancouver, Canada  
*Vancouver Convention Center* December 15, 2024  
Presented
  - **MindPlayer: Efficient Asynchronous Parallel SGD in the Presence of Heterogeneous and Random Worker Compute Times** (Oral presentation, top 5% of 107 submissions) [[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 **MindFlayer: 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 **MindFlayer: 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 **MindFlayer: 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)