

Artavazd Maranjyan

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Education

- **Ph.D. in Computer Science** **Thuwal, Saudi Arabia**
2023 – 2025
King Abdullah University of Science and Technology (KAUST)
Advisor: Peter Richtárik
■ **Thesis:** First Provably Optimal Asynchronous SGD for Homogeneous and Heterogeneous Data
- **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

- **Research visit to Yi-Shuai Niu** **Beijing, China**
9-22 March 2025
Beijing Institute of Mathematical Sciences and Applications (BIMSA)
 - Gave talks at three universities (PKU, BUAA, BIMSA)
 - Worked with Professor Yi-Shuai Niu on a project on Server-Assisted Federated Learning
- **Researcher in the group of Martin Grigoryan** **Yerevan, Armenia**
April 2023 – August 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 – August 2023
YerevaNN
 - Worked on the intersection of Federated Learning and Optimization
- **Internship in the group of Peter Richtárik** **Thuwal, Saudi Arabia**
June 2022 – January 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**
January 2022 – June 2022
YerevaNN
 - Worked on the intersection of Federated Learning and Optimization

Industry Experiences

- **Co-Founder** **Yerevan, Armenia**
July 2021 – June 2022
[OnePick](#)
 - Built an MVP platform to help content creators and marketers generate or select photos that best matched their text descriptions
 - Participated in the [InVent 2.0](#) venture building program, advancing through team formation, idea generation, product development, and pitching
 - Secured initial funding and continued development beyond the program
- **Backend Developer** **Yerevan, Armenia**
July 2021 – September 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

September 2019 – January 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

CEMSE Dean's List Award

- *King Abdullah University of Science and Technology (KAUST)* May 2025
Awarded for excellent academic and research performance (\$2,500 prize)

Dean's Award

- *King Abdullah University of Science and Technology (KAUST)* September 2023
Awarded to a few top students accepted to KAUST (\$6,000 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

11. **Ringleader ASGD: The First Asynchronous SGD with Optimal Time Complexity under Data Heterogeneity**
Artavazd Maranjyan, Peter Richtárik
Submitted to ICLR 2026
10. **BiCoLoR: Communication-Efficient Optimization with Bidirectional Compression and Local Training**
Laurent Condat, Artavazd Maranjyan, Peter Richtárik
Submitted to ICLR 2026
9. **ATA: Adaptive Task Allocation for Efficient Resource Management in Distributed Machine Learning**
Artavazd Maranjyan, El Mehdi Saad, Peter Richtárik, Francesco Orabona
ICML 2025: Forty-Second International Conference on Machine Learning
8. **Ringmaster ASGD: The First Asynchronous SGD with Optimal Time Complexity**
Artavazd Maranjyan, Alexander Tyurin, Peter Richtárik
ICML 2025: Forty-Second International Conference on Machine Learning
7. **MindFlayer SGD: Efficient Parallel SGD in the Presence of Heterogeneous and Random Worker Compute Times**
Artavazd Maranjyan, Omar Shaikh Omar, Peter Richtárik
UAI 2025: The 41st Conference on Uncertainty in Artificial Intelligence
OPT 2024: Optimization for Machine Learning (NeurIPS workshop)
Oral presentation (top 5% of 107 submissions)
6. **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity**
Artavazd Maranjyan, Mher Safaryan, Peter Richtárik
TMLR 2025: Transactions on Machine Learning Research
5. **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)
4. **Differentially Private Random Block Coordinate Descent**
Artavazd Maranjyan, Abdurakhmon Sadiev, Peter Richtárik
OPT 2024: Optimization for Machine Learning (NeurIPS workshop)

3. **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
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

Reviewer

- 2024–Now Transactions on Machine Learning Research (TMLR)
 2026 International Conference on Learning Representations (ICLR)
 2024 SIAM Journal on Mathematics of Data Science (SIMODS)
 2024 The Journal of Machine Learning Research (JMLR)

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
 September 2023 - Dec 2023

Talks and Poster Presentations

2025 Talks and Poster Presentations

31. **AMCS/STAT graduate seminar** **KAUST, Saudi Arabia**
 KAUST November 13, 2025
 Delivered a talk titled **First Provably Optimal Asynchronous SGD for Homogeneous and Heterogeneous Data** [[slides](#)]
30. **The KAUST 2025 Workshop on Statistics** **KAUST, Saudi Arabia**
 KAUST November 4, 2025
 Presented posters on
 - **Ringmaster ASGD: The First Asynchronous SGD with Optimal Time Complexity** [[poster](#)]
 - **ATA: Adaptive Task Allocation for Efficient Resource Management in Distributed Machine Learning** [[poster](#)]
29. **Mathematics and Applications Colloquium** **KAUST, Saudi Arabia**
 KAUST October 28, 2025
 Delivered a talk on **Ringleader ASGD: The First Asynchronous SGD with Optimal Time Complexity under Data Heterogeneity** [[slides](#)]
28. **35º Colóquio Brasileiro de Matemática** **Rio de Janeiro, Brazil**
 Instituto Nacional de Matemática Pura e Aplicada (IMPA) July 27-31, 2025
 Delivered a talk and a poster on **Ringmaster ASGD: The First Asynchronous SGD with Optimal Time Complexity** [[slides](#)] [[poster](#)]
27. **41st Conference on Uncertainty in Artificial Intelligence** **Rio de Janeiro, Brazil**
 Rio Othon Palace July 21-25, 2025
 Presented a poster on **MindFlayer SGD: Efficient Parallel SGD in the Presence of Heterogeneous and Random Worker Compute Times** [[poster](#)]

26. **Forty-Second International Conference on Machine Learning** Vancouver, Canada
July 13-19, 2025
Vancouver Convention Center
Presented posters on
 - Ringmaster ASGD: The First Asynchronous SGD with Optimal Time Complexity [poster]
 - ATA: Adaptive Task Allocation for Efficient Resource Management in Distributed Machine Learning [poster]
25. **Stochastic Numerics and Statistical Learning** KAUST, Saudi Arabia
May 18, 2025
KAUST
Presented a poster on ATA: Adaptive Task Allocation for Efficient Resource Management in Distributed Machine Learning [poster]
24. **The Thirteenth International Conference on Learning Representations** Singapore
April 24-28, 2025
Singapore EXPO
Presented a poster on LoCoDL: Communication-Efficient Distributed Learning with Local Training and Compression (Spotlight presentation (top 5.1% of the submitted papers))
23. **Federated Learning One World Seminar (FLOW)** Online
April 16, 2025
FLOW Talk #126
Delivered a talk on Ringmaster ASGD: The First Asynchronous SGD with Optimal Time Complexity [video] [slides]
22. **KAUST Rising Stars in AI Symposium 2025** KAUST, Saudi Arabia
April 7-10, 2025
KAUST
Presented a poster on ATA: Adaptive Task Allocation for Efficient Resource Management in Distributed Machine Learning [poster]
21. **Machine Learning Reading Group** Yerevan, Armenia
March 28, 2025
YSU Krisp-AI Lab
Delivered a talk on Ringmaster ASGD: The First Asynchronous SGD with Optimal Time Complexity [slides]
20. **Flower AI Summit 2025** London, England
March 26, 2025
King's House
Delivered a talk on Ringmaster ASGD: The First Asynchronous SGD with Optimal Time Complexity [slides]
19. **Academic Report of the School of Mathematical Sciences** Beijing, China
March 17, 2025
Beihang University (BUAA)
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
March 13, 2025
Beijing Institute of Mathematical Sciences and Applications (BIMSA)
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
March 12, 2025
Peking University
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
February 27, 2025
KAUST
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
December 15, 2024
Vancouver Convention Center
Presented
 - MindFlayer: 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, 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

2. *FLOW Talk #88*

December 7, 2022

Delivered a talk on **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity** [[video](#)]

1. **Machine Learning Reading Group**

Yerevan, Armenia

1. *Yerevan State University*

April 10, 2022

Delivered a talk on **ProxSkip: Yes! Local Gradient Steps Provably Lead to Communication Acceleration! Finally!**

Hobbies

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