

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

- *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

Yerevan, Armenia

September 2019 – January 2021

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 Maranjanian, Peter Richtárik
Submitted to ICLR 2026
10. **BiCoLoR: Communication-Efficient Optimization with Bidirectional Compression and Local Training**
Laurent Condat, Artavazd Maranjanian, Peter Richtárik
Submitted to ICLR 2026
9. **ATA: Adaptive Task Allocation for Efficient Resource Management in Distributed Machine Learning**
Artavazd Maranjanian, 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 Maranjanian, 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 Maranjanian, 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 Maranjanian, 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 Maranjanian, 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 Maranjanian, 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

AMCS/STAT graduate seminar

31. KAUST

KAUST, Saudi Arabia

November 13, 2025

Delivered a talk titled **First Provably Optimal Asynchronous SGD for Homogeneous and Heterogeneous Data** [[slides](#)]

The KAUST 2025 Workshop on Statistics

30. KAUST

KAUST, Saudi Arabia

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](#)]

Mathematics and Applications Colloquium

29. KAUST

KAUST, Saudi Arabia

October 28, 2025

Delivered a talk on **Ringleader ASGD: The First Asynchronous SGD with Optimal Time Complexity under Data Heterogeneity** [[slides](#)]

35º Colóquio Brasileiro de Matemática

28. Instituto Nacional de Matemática Pura e Aplicada (IMPA)

Rio de Janeiro, Brazil

July 27-31, 2025

Delivered a talk and a poster on **Ringmaster ASGD: The First Asynchronous SGD with Optimal Time Complexity** [[slides](#)] [[poster](#)]

41st Conference on Uncertainty in Artificial Intelligence

27. Rio Othon Palace

Rio de Janeiro, Brazil

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 Convention Center Presented posters on <ul style="list-style-type: none">○ Ringmaster ASGD: The First Asynchronous SGD with Optimal Time Complexity [poster]○ ATA: Adaptive Task Allocation for Efficient Resource Management in Distributed Machine Learning [poster]	Vancouver, Canada July 13-19, 2025
25.	Stochastic Numerics and Statistical Learning KAUST Presented a poster on ATA: Adaptive Task Allocation for Efficient Resource Management in Distributed Machine Learning [poster]	KAUST, Saudi Arabia May 18, 2025
24.	The Thirteenth International Conference on Learning Representations 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))	Singapore April 24-28, 2025
23.	Federated Learning One World Seminar (FLOW) FLOW Talk #126 Delivered a talk on Ringmaster ASGD: The First Asynchronous SGD with Optimal Time Complexity [video] [slides]	Online April 16, 2025
22.	KAUST Rising Stars in AI Symposium 2025 KAUST Presented a poster on ATA: Adaptive Task Allocation for Efficient Resource Management in Distributed Machine Learning [poster]	KAUST, Saudi Arabia April 7-10, 2025
21.	Machine Learning Reading Group YSU Krisp-AI Lab Delivered a talk on Ringmaster ASGD: The First Asynchronous SGD with Optimal Time Complexity [slides]	Yerevan, Armenia March 28, 2025
20.	Flower AI Summit 2025 King's House Delivered a talk on Ringmaster ASGD: The First Asynchronous SGD with Optimal Time Complexity [slides]	London, England March 26, 2025
19.	Academic Report of the School of Mathematical Sciences Beihang University (BUAA) Invited by Jiaxin Xie to give a talk on Ringmaster ASGD: The First Asynchronous SGD with Optimal Time Complexity [slides]	Beijing, China March 17, 2025
18.	Optimization Seminar 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]	Beijing, China March 13, 2025
17.	Seminar Peking University Invited by Kun Yuan to give a talk on Ringmaster ASGD: The First Asynchronous SGD with Optimal Time Complexity [slides]	Beijing, China March 12, 2025
16.	AMCS/STAT graduate seminar KAUST Delivered a talk on Ringmaster ASGD: The First Asynchronous SGD with Optimal Time Complexity [slides]	KAUST, Saudi Arabia February 27, 2025

2024 Talks and Poster Presentations

15.	Workshop on Optimization for Machine Learning (NeurIPS 2024) Vancouver Convention Center Presented <ul style="list-style-type: none">○ 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	Vancouver, Canada December 15, 2024
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	MLR Weekly Seminar	Online
14.	<i>Machine Learning Research at Apple</i> 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]	November 21, 2024
13.	International Conference on Algebra, Logic, and their Applications <i>Yerevan State University</i> Delivered a talk on MindFlayer: Efficient Asynchronous Parallel SGD in the Presence of Heterogeneous and Random Worker Compute Times	Online October 18, 2024
12.	CEMSE E-Poster Competition <i>KAUST</i> Awarded 3rd place for presenting a poster on GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity	KAUST, Saudi Arabia October 10, 2024
11.	Analysis, PDEs and Applications <i>Yerevan State University</i> Delivered a talk on MindFlayer: Efficient Asynchronous Parallel SGD in the Presence of Heterogeneous and Random Worker Compute Times [abstract]	Yerevan, Armenia July 6, 2024
10.	Stochastic Numerics and Statistical Learning <i>KAUST</i> Presented a poster on GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity [poster]	KAUST, Saudi Arabia May 27, 2024
9.	CS 331: Stochastic Gradient Descent Methods <i>KAUST</i> Delivered a guest lecture on MindFlayer: Efficient Asynchronous Parallel SGD in the Presence of Heterogeneous and Random Worker Compute Times	KAUST, Saudi Arabia May 5, 2024
8.	The Machine Learning Summer School in Okinawa 2024 <i>Okinawa Institute of Science and Technology (OIST)</i> Presented a poster on GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity [poster]	Okinawa, Japan March 13, 2024
7.	KAUST Rising Stars in AI Symposium 2024 <i>KAUST</i> Presented a poster on GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity [poster]	KAUST, Saudi Arabia February 21, 2024
2023 Talks and Poster Presentations		
6.	Group Seminar <i>KAUST</i> Delivered a talk on Differentially Private Coordinate Descent for Composite Empirical Risk Minimization	KAUST, Saudi Arabia November 16, 2023
5.	Algorithms & Computationally Intensive Inference seminars <i>University of Warwick</i> Delivered a talk on GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity [slides]	Coventry, England October 6, 2023
4.	Mathematics in Armenia: Advances and Perspectives <i>Yerevan State University</i> Delivered a talk on GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity [abstract]	Yerevan, Armenia July 5, 2023
3.	Machine Learning Reading Group <i>Yerevan State University</i> Delivered a talk on GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity [video (Armenian)]	Yerevan, Armenia March 10, 2023

2022 Talks and Poster Presentations.....

2. **Federated Learning One World Seminar (FLOW)**

Online

December 7, 2022

2. *FLOW Talk #88*

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

1. **Machine Learning Reading Group**

1. *Yerevan State University*

Yerevan, Armenia

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)