

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
- **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

30. *AMCS/STAT graduate seminar*

KAUST

KAUST, Saudi Arabia

November 13, 2025

Delivered a talk on **Ringleader ASGD: The First Asynchronous SGD with Optimal Time Complexity under Data Heterogeneity**

29. *Mathematics and Applications Colloquium*

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](#)]

28. *35º Colóquio Brasileiro de Matemática*

Instituto Nacional de Matemática Pura e Aplicada (IMPA)

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

Rio de Janeiro, Brazil

July 27-31, 2025

27. *41st Conference on Uncertainty in Artificial Intelligence*

Rio Othon Palace

Presented a poster on **MindFlayer SGD: Efficient Parallel SGD in the Presence of Heterogeneous and Random Worker Compute Times** [[poster](#)]

Rio de Janeiro, Brazil

July 21-25, 2025

26. *Forty-Second International Conference on Machine Learning*

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](#)]

Vancouver, Canada

July 13-19, 2025

25. *Stochastic Numerics and Statistical Learning*

KAUST

KAUST, Saudi Arabia

May 18, 2025

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 <i>Singapore EXPO</i>	Singapore April 24-28, 2025
	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) <i>FLOW Talk #126</i>	Online April 16, 2025
	Delivered a talk on Ringmaster ASGD: The First Asynchronous SGD with Optimal Time Complexity [video] [slides]	
22.	KAUST Rising Stars in AI Symposium 2025 <i>KAUST</i>	KAUST, Saudi Arabia April 7-10, 2025
	Presented a poster on ATA: Adaptive Task Allocation for Efficient Resource Management in Distributed Machine Learning [poster]	
21.	Machine Learning Reading Group <i>YSU Krisp-AI Lab</i>	Yerevan, Armenia March 28, 2025
	Delivered a talk on Ringmaster ASGD: The First Asynchronous SGD with Optimal Time Complexity [slides]	
20.	Flower AI Summit 2025 <i>King's House</i>	London, England March 26, 2025
	Delivered a talk on Ringmaster ASGD: The First Asynchronous SGD with Optimal Time Complexity [slides]	
19.	Academic Report of the School of Mathematical Sciences <i>Beihang University (BUAA)</i>	Beijing, China 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 <i>Beijing Institute of Mathematical Sciences and Applications (BIMSA)</i>	Beijing, China 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 <i>Peking University</i>	Beijing, China 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 <i>KAUST</i>	KAUST, Saudi Arabia February 27, 2025
	Delivered a talk on Ringmaster ASGD: The First Asynchronous SGD with Optimal Time Complexity [slides]	
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2024 Talks and Poster Presentations		
15.	Workshop on Optimization for Machine Learning (NeurIPS 2024) <i>Vancouver Convention Center</i>	Vancouver, Canada December 15, 2024
	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 <i>Machine Learning Research at Apple</i>	Online 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 <i>Yerevan State University</i>	Online October 18, 2024
	Delivered a talk on MindFlayer: Efficient Asynchronous Parallel SGD in the Presence of Heterogeneous and Random Worker Compute Times	

- CEMSE E-Poster Competition**
12. KAUST
Awarded 3rd place for presenting a poster on **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity**
- Analysis, PDEs and Applications**
11. Yerevan State University
Delivered a talk on **MindFlayer: Efficient Asynchronous Parallel SGD in the Presence of Heterogeneous and Random Worker Compute Times** [[abstract](#)]
- Stochastic Numerics and Statistical Learning**
10. KAUST
Presented a poster on **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity** [[poster](#)]
- CS 331: Stochastic Gradient Descent Methods**
9. KAUST
Delivered a guest lecture on **MindFlayer: Efficient Asynchronous Parallel SGD in the Presence of Heterogeneous and Random Worker Compute Times**
- The Machine Learning Summer School in Okinawa 2024**
8. Okinawa Institute of Science and Technology (OIST)
Presented a poster on **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity** [[poster](#)]
- KAUST Rising Stars in AI Symposium 2024**
7. KAUST
Presented a poster on **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity** [[poster](#)]
- 2023 Talks and Poster Presentations**
6. **Group Seminar**
KAUST
Delivered a talk on **Differentially Private Coordinate Descent for Composite Empirical Risk Minimization**
5. **Algorithms & Computationally Intensive Inference seminars**
University of Warwick
Delivered a talk on **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity** [[slides](#)]
4. **Mathematics in Armenia: Advances and Perspectives**
Yerevan State University
Delivered a talk on **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity** [[abstract](#)]
3. **Machine Learning Reading Group**
Yerevan State University
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)**
FLOW Talk #88
Delivered a talk on **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity** [[video](#)]
1. **Machine Learning Reading Group**
Yerevan State University
Delivered a talk on **ProxSkip: Yes! Local Gradient Steps Provably Lead to Communication Acceleration! Finally!**

KAUST, Saudi Arabia
October 10, 2024

Yerevan, Armenia
July 6, 2024

KAUST, Saudi Arabia
May 27, 2024

KAUST, Saudi Arabia
May 5, 2024

Okinawa, Japan
March 13, 2024

KAUST, Saudi Arabia
February 21, 2024

KAUST, Saudi Arabia
November 16, 2023

Coventry, England
October 6, 2023

Yerevan, Armenia
July 5, 2023

Yerevan, Armenia
March 10, 2023

Online
December 7, 2022

Yerevan, Armenia
April 10, 2022

Hobbies

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