

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](#)

Experience

- **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
- **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 \[certificate\]](#) 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

○ **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)

Papers

7. **Differentially Private Random Block Coordinate Descent**

Artavazd Maranjyan, Abdurakhmon Sadiev, Peter Richtárik

Submitted to Artificial Intelligence and Statistics 2025

6. **MindFlayer: Efficient Asynchronous Parallel SGD in the Presence of Heterogeneous and Random Worker Compute Times**

Artavazd Maranjyan, Omar Shaikh Omar, Peter Richtárik

arXiv:2410.04285, 2024

5. **LoCoDL: Communication-Efficient Distributed Learning with Local Training and Compression**

Laurent Condat, **Artavazd Maranjyan**, Peter Richtárik

arXiv:2403.04348, 2024

4. **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

3. **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, p. 1–10, Sep. 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

Talks and Poster Presentations

Future Talks.....

15. **Workshop on Optimization for Machine Learning (NeurIPS 2024)** **Vancouver, Canada**
Vancouver Convention Center *December 15, 2024*
Presenting
 - **MindFlayer: Efficient Asynchronous Parallel SGD in the Presence of Heterogeneous and Random Worker Compute Times**
 - **Differentially Private Random Block Coordinate Descent**
 - **LoCoDL: Communication-Efficient Distributed Learning with Local Training and Compression**
14. **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**
13. **Conference on the Mathematical Theory of Deep Neural Networks** **Philadelphia, USA**
TBA *November 15 - 16, 2024*
Presenting a poster on **MindFlayer: Efficient Asynchronous Parallel SGD in the Presence of Heterogeneous and Random Worker Compute Times**

2024 Talks and Poster Presentations.....

12. **CEMSE E-Poster Competition** **KAUST, Saudi Arabia**
KAUST *October 10, 2024*
Presented poster on **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity** [3rd place]
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 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 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 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!**

Reviewing and Organizational Work

Academic and Professional Involvement

Reviewing

- Reviewer for *Transactions on Machine Learning Research (TMLR)* 2024
- Reviewer for *The Journal of Machine Learning Research (JMLR)* 2024
- **Organized weekly group seminars**
- *KAUST* *Sep 2023 - Dec 2023*

Hobbies

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