

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

2024 Talks and Poster Presentations.....

12. **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity**
Poster presentation @ CEMSE E-Poster Competition [3rd place]
KAUST, Thuwal, Saudi Arabia, October 10, 2024
11. **MindPlayer: Efficient Asynchronous Parallel SGD in the Presence of Heterogeneous and Random Worker Compute Times**
Talk @ Analysis, PDEs and Applications [abstract]
Yerevan State University, Yerevan, Armenia, July 6, 2024
10. **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity**
Poster presentation @ Stochastic Numerics and Statistical Learning: Theory and Applications Workshop 2024 [poster]
KAUST, Thuwal, Saudi Arabia, May 27, 2024
9. **MindPlayer: Efficient Asynchronous Parallel SGD in the Presence of Heterogeneous and Random Worker Compute Times**
Guest lecture @ CS 331, Stochastic Gradient Descent Methods
KAUST, Thuwal, Saudi Arabia, May 5, 2024
8. **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity**
Poster presentation @ The Machine Learning Summer School in Okinawa 2024 [poster]
Okinawa Institute of Science and Technology (OIST), Okinawa, Japan, March 13, 2024
7. **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity**
Poster presentation @ KAUST Rising Stars in AI Symposium 2024 [poster]
KAUST, Thuwal, Saudi Arabia, February 21, 2024

2023 Talks and Poster Presentations.....

6. **Differentially Private Coordinate Descent for Composite Empirical Risk Minimization**
Talk @ Group Seminar
KAUST, Thuwal, Saudi Arabia, November 16, 2023
5. **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity**
Talk @ Algorithms & Computationally Intensive Inference seminars [slides]
University of Warwick, Coventry, England, October 6, 2023
4. **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity**
Talk @ Mathematics in Armenia: Advances and Perspectives [abstract]
Yerevan State University, Yerevan, Armenia, July 5, 2023
3. **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity**
Talk @ Machine Learning Reading Group Yerevan [video (Armenian)]
Yerevan State University, Yerevan, Armenia, March 10, 2023

2022 Talks and Poster Presentations.....

2. **GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity**

Talk @ *Federated Learning One World Seminar (FLOW)* [video]

Online, December 7, 2022

1. **ProxSkip: Yes! Local Gradient Steps Provably Lead to Communication Acceleration! Finally!**

Talk @ *Machine Learning Reading Group Yerevan*

Yerevan State University, Yerevan, Armenia, April 10, 2022

Reviewing and Organizational Work

○ Reviewer for *Transactions on Machine Learning Research (TMLR)* 2024

○ Reviewer for *The Journal of Machine Learning Research (JMLR)* 2024

○ **KAUST**

○ Organized weekly group seminars Sep 2023 - Dec 2023

Hobbies

Ultimate Frisbee, Dancing (bachata, salsa), **Board Games**, Table Football (Foosball)