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**
Picsart   *Sep 2019 – Jan 2021*

- 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   **Thuwal, Saudi Arabia**
King Abdullah University of Science and Technology (KAUST)   *Sep 2023 - Sep 2026*

Awarded to a few top students accepted to KAUST (6000$ annually for 3 years).

Outstanding Final Project Award   **Yerevan, Armenia**
Yerevan State University   *May 2021*

Recognized for the Bachelor's thesis (awarded to 6 students among 250+ students).

Papers

LoCoDL: Communication-Efficient Distributed Learning with Local Training and Compression
Laurent Condat, **Artavazd Maranjyan**, Peter Richtárik
arXiv:2403.04348, 2024.

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.

GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity
Artavazd Maranjyan, Mher Safaryan, Peter Richtárik
arXiv:2210.16402, 2022

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.

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

"GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity"
Mathematics in Armenia: Advances and Perspectives [slides] [abstract]
Yerevan, Armenia, July 5, 2023

"GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity"
Machine Learning Reading Group Yerevan [video (Armenian)]
Yerevan, Armenia, March 10, 2023

"GradSkip: Communication-Accelerated Local Gradient Methods with Better Computational Complexity"
Federated Learning One World Seminar (FLOW) [video]
Online, December 7, 2022

"ProxSkip: Yes! Local Gradient Steps Provably Lead to Communication Acceleration! Finally!"
Machine Learning Reading Group Yerevan

Yerevan, Armenia, April 10, 2022

Skills

- Algorithms and Data Structures [certificate],
- Python, Java, R,
- Numpy, Pandas, Matplotlib, Scikit-learn,
- PyTorch, Tensorflow,
- Languages
  - English: Proficient,
  - Russian: Proficient,
  - Armenian: Native

Hobbies

Dancing (bachata, salsa, kizomba), climbing, snorkeling, table football (foosball), board games.