

# 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

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### ○ **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

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

**Artavazd Maranjyan**, Abdurakhmon Sadiev, Peter Richtárik

*arXiv:2412.17054*, 2024

### 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

## Academic and Professional Involvement

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### Reviewer

SIAM Journal on Mathematics of Data Science (SIMODS) 2024, Transactions on Machine Learning Research (TMLR) 2024, The Journal of Machine Learning Research (JMLR) 2024,

### Organized weekly group seminars

KAUST

KAUST, Saudi Arabia

Sep 2023 - Dec 2023

## Talks and Poster Presentations

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2024 Talks and Poster Presentations.....

15. **Workshop on Optimization for Machine Learning (NeurIPS 2024)** **Vancouver, Canada**  
*Vancouver Convention Center* *December 15, 2024*  
Presenting
  - **MindPlayer: Efficient Asynchronous Parallel SGD in the Presence of Heterogeneous and Random Worker Compute Times (Oral, Top 5%)**
  - **Differentially Private Random Block Coordinate Descent**
  - **LoCoDL: Communication-Efficient Distributed Learning with Local Training and Compression**
14. **MLR Weekly Seminar** **Online**  
*Machine Learning Research at Apple* *November 21, 2024*  
Invited by **Samy Bengio** to give a talk on **MindPlayer: Efficient Asynchronous Parallel SGD in the Presence of Heterogeneous and Random Worker Compute Times** [slides]
13. **Interntional Conference on Algebra, Logic, and their Applications** **Online**  
*Yerevan State University* *October 18, 2024*  
Delivered a talk on **MindPlayer: Efficient Asynchronous Parallel SGD in the Presence of Heterogeneous and Random Worker Compute Times**
12. **CEMSE E-Poster Competition** **KAUST, Saudi Arabia**  
*KAUST* *October 10, 2024*  
Presented a 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 **MindPlayer: 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 a 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 **MindPlayer: 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 a 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 a 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!**

## Hobbies

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