

Education

- Jan 2022 – **Ph.D. Electrical and Computer Engineering**, *Princeton University*, New Jersey, United States.
Present Advisor: Professor [Chi Jin](#). GPA: 3.96/4.0.
- Oct 2015 – **B.Sc. Computer Engineering**, *Cairo University*, Egypt.
Aug 2020 GPA: Distinction with Honors (91.3%). Rank: 3rd/64.

Work Experience

- May 25 – **Applied Scientist Intern**, *Amazon AWS AI*, Santa Clara, California, United States.
Aug 25 Worked on distributed optimization with [Youngsuk Park](#), [Kaan Ozkara](#), and [Tao Yu](#).
- May–Aug **Student Researcher**, *Google DeepMind*, New York City, New York, United States.
2024 Worked on distributed and adaptive optimization with [Manzil Zaheer](#). Also did some neural network architecture research.
- May–Sep **Research Scientist Intern**, *Meta*, New York City, New York, United States.
2023 Research scientist intern at the Fundamental AI Research Team at Meta working with [Aaron Defazio](#). Worked on adaptive optimization.
- Jun–Oct 2020 **Research Intern**, *KAUST*, Saudi Arabia.
- Jun–Sep 2019 Research intern in the group of Professor [Peter Richtárik](#). Worked on federated learning and optimization.
- Aug–Sep **Undergraduate Research Assistant**, *Cairo University*, Egypt.
2018 Worked with Professors [Amir Atiya](#) and [Ahmed Abdel-Gawad](#) on fast matrix multiplication algorithms. Wrote code in CUDA C.

Awards

- 2020–2025 **Top reviewer**, *various conferences*.
Received the Best Reviewer award for [AISTATS 2025](#), ICML 2022 (awarded free registration, July 2022), [AISTATS 2022](#) (awarded Feb. 2022) and NeurIPS 2020 (awarded free registration, Oct. 2020).
- 2023/2024 **School of Engineering and Applied Sciences (SEAS) Travel Grant**, *Princeton University*.
Awarded a travel grant worth used towards going to ICLR 2023 / INFORMS Annual Meeting 2024.
- Oct 2020 **INFORMS Undergraduate Operations Research Prize Finalist**, *Institute for Operations Research and the Management Sciences (INFORMS)*.
One of ten finalists selected to give a presentation on outstanding research done as an undergraduate.
- Jan 2020 **SIGAPP Student Travel Award**, *ACM*, (Declined).
Travel award worth \$700 used towards going to the ACM SAC 2020 conference. Declined due to Covid.
- Sep 2019 **Mentor Achievement Award**, *Learn IT, Girl 4th Edition*.
Awarded for successfully mentoring for three months in learning IT.

Papers

Conference papers

- (1) Aaron Mishkin*, **A. Khaled***, Yuanhao Wang, Aaron Defazio, and Robert M. Gower - [Directional Smoothness and Gradient Methods: Convergence and Adaptivity](#). NeurIPS 2024.
*Note: * indicates joint first authorship.*
- (2) Aaron Defazio, Xinyu (Alice) Yang, Harsh Mehta, Konstantin Mishchenko, **A. Khaled**, Ashok Cutkosky - [The Road Less Scheduled](#) - NeurIPS 2024 **oral**.
- (3) Abdurakhmon Sadiev, Grigory Malinovsky, Eduard Gorbunov, Igor Sokolov, **A. Khaled**, Konstantin Burlachenko and Peter Richtárik - [Federated Optimization Algorithms with Random Reshuffling and Gradient Compression](#). NeurIPS 2024.

- (4) **A. Khaled**, Chi Jin - [Tuning-Free Stochastic Optimization](#) - ICML 2024 **Spotlight** (acceptance rate 3.5%).
- (5) **A. Khaled**, Konstantin Mishchenko, and Chi Jin - [DoWG Unleashed: An Efficient Universal Parameter-Free Gradient Descent Method](#) - NeurIPS 2023.
- (6) **A. Khaled** and Chi Jin - [Faster federated optimization under second-order similarity](#) - ICLR 2023.
- (7) Konstantin Mishchenko, **A. Khaled**, and Peter Richtárik - [Proximal and Federated Random Reshuffling](#) - ICML 2022.
- (8) Elnur Gasanov, **A. Khaled**, Samuel Horváth, and Peter Richtárik - [FLIX: A Simple and Communication-Efficient Alternative to Local Methods in Federated Learning](#) - AISTATS 2022.
- (9) Konstantin Mishchenko, **A. Khaled**, and Peter Richtárik - [Random Reshuffling: Simple Analysis with Vast Improvements](#) - NeurIPS 2020.
- (10) **A. Khaled**, Konstantin Mishchenko, and Peter Richtárik - [Tighter Theory for Local SGD on Identical and Heterogeneous Data](#) - AISTATS 2020.
- (11) **A. Khaled**, Amir F. Atiya, Ahmed H. Abdelgawad - [Applying Fast Matrix Multiplication to Neural Networks](#) - ACM SAC 2020.

Journal papers

- (12) **A. Khaled**, Othmane Sebbouh, Nicolas Loizou, Robert M. Gower, and Peter Richtárik - [Unified Analysis of Stochastic Gradient Methods for Composite Convex and Smooth Optimization](#) - Journal of Optimization Theory and Applications (JOTA) 2023.
- (13) **A. Khaled** and Peter Richtárik - [Better Theory for SGD in the Nonconvex World](#) - Transactions of Machine Learning Research (TMLR) 2023.

Preprints

- (14) **A. Khaled**, Satyen Kale, Arthur Douillard, Chi Jin, Rob Fergus, and Manzil Zaheer - [Understanding Outer Learning Rates in Local SGD](#) - arXiv:2509.10439 (2025).
- (15) Sélim Chraïbi, **A. Khaled**, Dmitry Kovalev, Peter Richtárik, Adil Salim, and Matrin Takáč - [Distributed Fixed Points Methods with Compressed Iterates](#) - arXiv:1912.09925 (2019).

Workshop papers

- (16) Aaron Mishkin*, **A. Khaled***, Aaron Defazio, and Robert M. Gower - [A novel analysis of gradient descent under directional smoothness](#) - Poster at the NeurIPS 2023 Optimization for ML workshop.
- (17) **A. Khaled**, Konstantin Mishchenko, and Peter Richtárik - [Better Communication Complexity for Local SGD](#) - **Oral presentation** at the NeurIPS 2019 Federated Learning workshop.
- (18) **A. Khaled** and Peter Richtárik - [Gradient descent with Compressed Iterates](#) - Poster at the NeurIPS 2019 Federated Learning workshop.
- (19) **A. Khaled**, Konstantin Mishchenko, and Peter Richtárik - [First Analysis of Local GD on Heterogeneous Data](#) - Poster at the NeurIPS 2019 Federated Learning workshop.

Skills

Technical Python, C/C++, \LaTeX , Git.
 Languages English (fluent) and Arabic (native).

Programming projects

- Style Transfer (Image Processing course project): Implemented Elad and Milanfar's Style-Transfer via Texture-Synthesis paper in Python using OpenCV, scikit-learn and NumPy. [Code](#), [Report](#).
- Gated Neural Networks (Multimedia course project): Implemented a gated neural nets algorithm (PAQ7) for compression in C++. Won 1st place out of 15 teams in a department-wide text compression contest. [Report](#).
- GoSlayer (Machine Intelligence course project): Led a team of sixteen people in implementing an AI agent that plays Go based on Monte-Carlo Tree Search and various heuristics. [Code](#), [Report](#).
- Arabic OCR (Pattern Recognition course project): Implemented Nashwan et al.'s A Holistic Technique for an Arabic OCR System paper in Python using OpenCV, scikit-learn, and NumPy, in addition to multiple other papers. [Code](#), [Report](#).

- PacMan (Microprocessors course project): Wrote a multiplayer PacMan-like game in pure x86 assembly with search-based AI. [Code](#).

Teaching

Fall 25 **SML 301**, *Princeton University*.

Teaching assistant for SML301: Data Intelligence: Modern Data Science Methods. Undergraduate course on Data Science.

Springs 23/24 **ECE539/COS512**, *Princeton University*.

& Fall 24 Teaching assistant for ECE539: Optimization for Machine Learning. Graduate course on optimization.

May 24 **Optimization Short Course**, *MLx Fundamentals*, Oxford Machine Learning Summer School (OxML).

Teaching assistant for a lecture on optimization at the MLx Fundamentals Oxford Machine Learning Summer School.