

Education

- 2022- **Ph.D. Electrical and Computer Engineering**, *Princeton University*, Princeton, New Jersey.
2015–2020 **B.Sc. Computer Engineering**, *Cairo University*, Egypt.
GPA: Distinction with Honors (91.3%). Rank: 3rd/64.

Work Experience

- Jun–Oct 2020 **Research Intern**, *King Abdullah University of Science and Technology*, Saudi Arabia.
Remote research intern in the group of Professor **Peter Richtárik**. Worked on federated and convex composite optimization.
- Jun–Sep 2019 **Research Intern**, *King Abdullah University of Science and Technology*, Saudi Arabia.
Worked in the group of Professor **Peter Richtárik** on stochastic optimization. Analyzed algorithms for distributed and non-convex optimization.
- Aug–Sep 2018 **Undergraduate Research Assistant**, *Cairo University*, Egypt.
Worked with Professor **Amir Atiya** and Professor **Ahmed Abdel-Gawad** on fast matrix multiplication algorithms. Wrote code in CUDA C.
- Jun–Aug 2016 **Nafham**, *Intern*.
Recorded more than 40 educational videos on high school mathematics and tutored multiple students in Arabic. Also wrote web pages in HTML, JavaScript, & CSS, and PHP with Bootstrap and Laravel.
- Aug–Sep 2017

Awards

- Sep 2019 **Mentor Achievement Award**, *Learn IT, Girl 4th Edition*.
Awarded for successfully mentoring Natalia Grzywalska over March–June 2019 in learning IT.
- 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 at the 2020 INFORMS annual meeting.
- Oct 2020 **Top 10% of Reviewers**, *NeurIPS 2020*.
Awarded one free registration to NeurIPS 2020 for being one of the top 10% of high-scoring reviewers for the year.

Papers

Conference papers

- (1) Elnur Gasanov, **A. Khaled**, Samuel Horváth, and Peter Richtárik - **FLIX: A Simple and Communication-Efficient Alternative to Local Methods in Federated Learning** - AISTATS 2022.
- (2) Konstantin Mishchenko, **A. Khaled**, and Peter Richtárik - **Random Reshuffling: Simple Analysis with Vast Improvements** - NeurIPS 2020.
- (3) **A. Khaled**, Konstantin Mishchenko, and Peter Richtárik - **Tighter Theory for Local SGD on Identical and Heterogeneous Data** - AISTATS 2020.
- (4) **A. Khaled**, Amir F. Atiya, Ahmed H. Abdelgawad - **Applying Fast Matrix Multiplication to Neural Networks** - ACM SAC 2020.

Workshop papers

- (1) **A. Khaled**, Konstantin Mishchenko, and Peter Richtárik - **Better Communication Complexity for Local SGD** - *Oral presentation* at the NeurIPS 2019 Federated Learning Workshop.
- (2) **A. Khaled** and Peter Richtárik - **Gradient descent with Compressed Iterates** - Poster at the NeurIPS 2019 Federated Learning Workshop.
- (3) **A. Khaled**, Konstantin Mishchenko, and Peter Richtárik - **First Analysis of Local GD on Heterogeneous Data** - Poster at the NeurIPS 2019 Federated Learning Workshop.

Preprints

- (1) Konstantin Mishchenko, **A. Khaled**, and Peter Richtárik - **Proximal and Federated Random Reshuffling** - arXiv:2102.06704 (2021).
- (2) **A. Khaled**, Othmane Sebbouh, Nicolas Loizou, Robert M. Gower, and Peter Richtárik - **Unified Analysis of Stochastic Gradient Methods for Composite Convex and Smooth Optimization** - arXiv:2006.11573 (2020).
- (3) **A. Khaled** and Peter Richtárik - **Better Theory for SGD in the Nonconvex World** - arXiv:2002.03329 (2020).
- (4) Sélím Chraïbi, **A. Khaled**, Dmitry Kovalev, Peter Richtárik, Adil Salim, and Matrin Takáč - **Distributed Fixed Points Methods with Compressed Iterates** - arXiv:1912.09925 (2019).

Skills

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