

Education

- Sept 2019 – **Boston University**, *Boston*, Massachusetts, USA.
Present PhD in Computer Science
- June 2019 **The American University in Cairo**, *Cairo*, Egypt.
BSc *summa cum laude* (Highest Honors) – GPA: 3.93/4.00
Double Major in Computer Engineering and Mathematics
Awarded the Ahmed H. Zewail Medal for Excellence in the Sciences and Humanities
- July 2013 **Kafr El-Zayat High School**, *Gharbeya*, Egypt. 99.76%.
Top-Ranked Student Nationwide (1st of approx. 1/2 million students)

Academic Research Experience

Research in Pure Mathematics

- 2017 – 2018 **The American University in Cairo, Egypt**
Undergraduate Researcher, Mathematics Department
Supervisor: Dr. Mohammad Sadek
Topics: Number Theory; Elliptic Curves
- Surveyed different variants of the Diophantine Tuples;
 - Defined a new variant and proved its non-existence;
 - Parameterizing all possible $q \in Q$ for which a given non-zero rational triple (x_1, x_2, x_3) form a $D(q) - m$ -tuple

Research in Computer Science and Applied Mathematics

- Sep 2019 – **Boston University, Boston, MA, USA**
Present *Doctoral Researcher, Department of Computer Science*
Supervisor: Prof. Mark Bun
- Research into proof systems for QMA
- Supervisor: Prof. Leonid Reyzin
- Defined different notions for leakage-resilient zero-knowledge in zero-knowledge proofs on secret-shared data in the local and global leakage models;
 - Showed a *local leakage resilience* property of an existing zero-knowledge proof system.
- Sep – Dec 2018 **École polytechnique fédérale de Lausanne (EPFL), Switzerland**
Visiting Student Researcher, Decentralized and Distributed Systems (DEDIS) Lab
Supervisor: Prof. Bryan Ford
- Designing and implementing a fully-decentralized privacy-preserving machine learning system using blockchains, threshold cryptography, zero-knowledge proofs, secret-sharing, and multi-party computation;
 - Preparing a preprint manuscript for submitting to publication;
 - Participated in different team meetings and seminars
- Jun – Aug 2017 **UCLA Institute for Pure and Applied Mathematics (IPAM), Los Angeles, CA, USA**
Undergraduate Researcher, Research in Industrial Projects for Students (RIPS)
Supervisor: Dr. Shantanu H. Joshi
- Worked in a team of four students on building a facial verification engine sponsored by **GumGum**, an applied computer vision company;
 - Used a variety of mathematical concepts and machine learning tools including Tensorflow, Keras, and Torch;
 - Presented the work in the Joint Mathematics Meetings (JMM) Conference
- 2016 – 2019 **The American University in Cairo, Egypt**
Undergraduate Researcher, Computer Science and Engineering Department
Supervisor: Prof. Sherif El-Kassas
Topics: Formal Methods; Security; Privacy
- Worked on designing a limited proxying framework for content filtering that is published in LNCS
 - Modeled simple security protocols in the symbolic model using the Tamarin prover;

Jun – Aug **Center for Informatics Science, Nile University, Giza, Egypt**

2014 *Summer Trainee, Ubiquitous & Visual Computing Group*

- Applied different machine learning topics including classification, clustering, feature selection and ensemble methods using Weka;
- Mentored a new intern and prepared a training manual for future interns

Industrial Experience

Summer **Twitter, San Francisco, CA, USA**

2019 & Fall *Software Engineering Intern, User Onboarding Backend Team*

2017 Mentor (Summer 2019): Christine Chen, PhD, UIUC

- Worked on calibration of account recommendations for new users between diversity and accuracy;
- Designed and launched an online experiment to A/B test the developed methods with millions of Twitter users;
- Participated in and co-organized reading groups on security and machine learning.

Mentor (Fall 2017): Yang Tang, MSc, Tsinghua University

- Trained and evaluated machine learning models for improving who-to-follow account recommendations in profile pages;
- Integrated and deployed ML models online for experimentation with a portion of production traffic;
- Participated in team code reviews, deploying and monitoring services, and resolving tech debts;
- Developed software in Scala and used Hadoop and Scalding.

Jun – Aug **Twitter, Seattle, WA, USA**

2018 *Software Engineering Intern, Platform Security Team*

Mentor: Scott Robinson, BS, MIT

- Built an analytics pipeline and visualization dashboard for content security policy (CSP) violation reports;
- Participated in team code reviews, deploying, and monitoring services;
- Participated in and co-organized an internal security paper reading group;
- Developed software in Scala and used Hadoop and Scalding.

Jan – Mar **Affectiva, Cairo, Egypt**

2017 *Machine Learning Intern – Speech, Science Team*

Mentors: Taniya Mishra, PhD; Mohamed Ezz, MSc

- Worked directly with the lead speech scientist on emotion recognition from speech;
- Prototyped Affectiva's first multi-class speech emotion classifier;
- Employed transfer learning to adapt a deep Convolutional Neural Network (CNN) for the task of emotion recognition from speech.

Jul – Aug **Microsoft Research, Cairo, Egypt**

2015 *Summer Intern Software Development Engineer (SDE), Speaker Recognition Team*

Mentor: Motaz El-Saban, PhD

- Worked on Text-dependent Speaker Verification;
- Implemented the Hierarchical multi-Layer Acoustic Model (HiLAM) for speaker verification;
- Used a variety of speech processing toolkits and models such as HTK, Gaussian Mixture Modeling, MFCC feature extraction and voice activity detection;
- Used a mix of programming languages such as Matlab and C++.

Peer-Reviewed Publications

Conference Papers

- 1 **Limited Proxying for Content Filtering Based on X.509 Proxy Certificate Profile.** Islam Faisal and Sherif El-Kassas. In *Proc. 11th International Conference on Security for Information Technology and Communications (SECITC 2018)*, LNCS, Bucharest, Romania, November 2018. Springer.

Other Manuscripts

In Preparation

- 2 **KAIRES: Fully Decentralized Auditable Privacy-Preserving Framework for Aggregation.** Islam Faisal, Eleftherios Kokoris-Kogias, Bryan Ford, and Sherif El-Kassas.

Posters

- 3 **Convolutional Neural Networks and Metric Learning for Facial Verification.** Islam

Faisal, Andrew Nguyen, Prem Talwai, Surabhi Desai, and Shantanu Joshi. In *Joint Mathematics Meetings Conference*, San Diego, USA, January 2018.

Technical Reports

- 4 **Transfer Learning For Emotion Recognition From Speech.** Taniya Mishra, Islam Faisal, and Mohamed Ezzeldin A. Elshaer.

Pending Patents

- 5 **Speech analysis for cross-language mental state identification.** Taniya Mishra, Islam Faisal, and Mohamed Ezzeldin Abdelmonem Ahmed Mohamed. US Patent App. 16/206,135, June 6 2019.

Selected Conferences and Competitions

- September 2020 Arab Security Conference 2020 (Virtual Event)
Presented a talk titled: Achieving More by Knowing Less: Decentralized Infrastructures and Secure Multiparty Computing Protocols
- July 2020 Invited to Institute for Advanced Study (IAS)/Park City Mathematics Institute (PCMI) Graduate Summer School: Number Theory Informed by Computation (Cancelled due to COVID-19)
- Jan 2020 Attended two boot camps at the Simons Institute at UC Berkeley supported by Boston University:
- Lattices: Algorithms, Complexity, and Cryptography Boot Camp
- The Quantum Wave in Computing Boot Camp
- Aug 2019 The 39th Annual International Cryptology Conference (CRYPTO 2019). *Santa Barbara, CA, USA.*
Supported by Twitter to travel to the conference.
- Aug 2019 28th USENIX Security Symposium. *Santa Clara, CA, USA.*
Gave a lightning talk about our ongoing work building a fully decentralized framework for machine learning.
- Nov 2018 11th International Conference on Security for Information Technology and Communications (SECITC 2018). *Bucharest, Romania.*
Presented our paper “Limited Proxying for Content Filtering Based on X.509 Proxy Certificate Profile”
- Aug 2018 Arithmetic Geometry, Number Theory, and Computation. *MIT, Cambridge, MA, USA.*
- May 2018 The 13th Annual AUC Mathematics Competition. *Cairo, Egypt.*
Groups Round Winner
- 2017, 2018 The Annual Conference for Excellence in Undergraduate Research, Entrepreneurship and Creative Achievement (EURECA). *AUC, Cairo, Egypt.*
- Jan 2018 Joint Mathematics Meetings (JMM). *San Diego, California, USA.*
- Supported by AUC and UCLA’s IPAM to travel to the conference.
- Presented an oral presentation and a poster on our work on facial verification during the summer at IPAM.
- Jul 2015 Black-Box Optimization Competition at the Genetic and Evolutionary Computation Conference (GECCO). *Madrid, Spain.*
- Oct 2013 Intel Science Competition - Arab World 2013. *Amman, Jordan.*
- Mar 2013 Intel Bibliotheca Alexandrina Science and Engineering Fair. *Alexandria, Egypt.*

Honors and Awards

- 2019 Dean’s Fellowship, Graduate School of Arts & Sciences, Boston University
- 2019 ETH Zürich Direct Doctorate in Computer Science Scholarship (declined)
- 2019 École doctorale Informatique et Communications (EDIC) Fellowship, EPFL (declined)
- 2019 Graduated *summa cum laude* (Highest Honors), The American University in Cairo
- 2019 Ahmed H. Zewail Medal for Excellence in the Sciences and Humanities, AUC’s Centennial Graduation Commencement
- 2018 AUC Annual Mathematics Competition Groups Round 1st Place

- 2017 CSCE Exemplary Student
- 2013–2019 Dean’s List for outstanding academic achievement
- 2013 Top Ranked Student Nationwide in High School (1st of approx. 1/2 million students)
- Mar 2013 Intel Excellence in Computer Science Award – Awarded by Intel Foundation at the Intel Bibliotheca Alexandrina Science and Engineering Fair

■ Grants

- 2015–2018 AUC University Undergraduate Research Travel Grants UG#1810898, UG#1711739, UG#1504427
- 2014 AUC University Undergraduate Research Mini Grant UG#1404292
- 2013–2019 University Public Schools Scholarship – Full-tuition undergraduate scholarship

■ Undergraduate Teaching

- Held tutorials and review sessions for the following courses;
 - Helped students with questions or understanding the material during office hours;
 - Wrote and graded an assignment for the Big Data Analytics course
- Spring 2019 CSCE 4702 – Secure Systems Engineering
 - Winter 2018 CSCE 4910 – Big Data Analytics
 - Fall 2015 MACT 2131 – Discrete Mathematics
 - Spring 2015 MACT 2123 – Calculus III
 - Fall 2014 CSCE 2201 – Data Structures and Algorithms
 - Spring 2014 MACT 1122 – Calculus II
 - Spring 2014 CSCE 106 – Fundamentals of Computer Science

■ Academic Service & Extracurricular Activities

- Fall 2019 – Organizing the Quantum Cryptography Reading Group at Boston University
- Present
- 2019-2020 Mentored a team of undergraduates working on a senior project on verifiable distributed computing
- Spring 2018 Organized the AUC Security and Privacy Reading Group
- 2015 Arabic Managing Editor, The Insider AUC
- 2013, 2018 Academic Committee Member, Computer Science and Engineering Association
- 2011–2013 Founding Chair, KZ High School Tech-Club

■ References

Please *contact me* for a CV version with the references list.