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Emad Zinoghli

Education

2019–present **B.Sc., Computer Engineering**, *Sharif University of Technology*, Tehran, Iran
Initially admitted to Chemical Engineering

2020–2023 **Minor, Pure Mathematics**, *Sharif University of Technonlogy*, Tehran, Iran

gpa: 18.98/20.0

2018–2019 **High school**, *Great Alavi High school*, Mashhad, Iran

gpa: 19.0/20.0

2016–2018 **High school**, *Georges Vanier Secondary School*, Toronto, Canada

Experience

2021–present **Teaching Assistant**, Sharif University of Technology
I propose problems for assignments and exams, hold problem-solving sessions, and prepare slides for lectures. As a head or a chief assistant, I organized and coordinated other teaching assistants to provide an enjoyable and beneficial learning environment for students.

• Probability and Applications	Dr. Fanai	Fall 2021
• Engineering Probability and Statistics	Dr. Jafari	Spring 2022
• Theory of Machines and Languages (Chief TA)	Dr. Movaghar	Fall 2022
• Information Theory and Coding	Dr. Jafari	Fall 2022
• Theory of Machines and Languages (Chief TA)	Dr. Movaghar	Spring 2023
• Theory of Machines and Languages (Head TA)	Dr. Dolati	Fall 2023
• Theory of Machines and Languages	Dr. Izadi	Fall 2023
• Modern Cryptography	Dr. Khazai	Fall 2023
• Quantum Communications I	Dr. Salehi	Fall 2023

2023-2023 **Internship**, Sharif UT
I did my bachelor internship on the subject of "Design and Development of Quantum Communication Systems" with Dr. Jawad Salehi. We worked on systems with GU symmetry and the implementation of binary quantum communication systems.

2017–2018 **Math Tutor**, *Volunteering*, Georges Vanier SS
I tutored mathematics to high school students.

2018 **Mentee**, *UofT Mentorship program*, University of Toronto
A program offered by the University of Toronto in which mentees are paired with a graduate mentor and work on math research projects. I was supervised by Gauruv Patil and my research topic was *Analytical Number Theory*. This involved proving the *Prime Number Theory* alongside other theorems and results.

Research Experience

2022-2023 **Forschungspraxis**, Technical University of Munich

I worked "Randomized Identification Codes" specifically, analyzing a coding scheme with prime numbers proposed by R.F.Ahlswede, under the supervision of PhD Mohammad Javad Salariseddigh. In this research internship, I improved the original coding scheme R.F. Ahlswede using psuedoprime generation algorithm and improved its error probability bounds.

2022-2023 **Bachelor's Thesis**, Sharif UT

I conducted my Bachelor's project on the topic of "Differential Privacy" under the supervision of Dr. Javad Ebrahimi and Dr. Mohammad Ali Abam.

Research Projects

2022-2023 **Seminar Sessions**, Sharif UT

I presented "Code-Based Cryptography" and "Isogeny-based Cryptography" for the "Cryptography Seminars" of Dr. Shahram Khazai.

2022-2023 **Theoretical Project**, Sharif UT

I presented a survey on the topic of "Fully Homomorphic Encryption using Lattices " under the supervision of Dr. Taraneh Eghlidos.

2021-2022 **Theoretical Project**, Sharif UT

I conducted a survey on the topic of "Quantum Cryptography" under the supervision of Dr. Shahram Khazai. I provided a summary on quantum algorithms mainly on Shor's algorithm and secure quantum communication protocols.

Technical Experience

Proficient With

languages C, C++, Python, Java, Javascript, HTML, CSS

technologies Qiskit, Pennylane, Git, LaTeX, Jekyll

Have Experience With

languages Verilog, JSON , P5js, MIPS, 8086

technologies React, Modelsim, Quartus

Research Interests

- Quantum Computing: Quantum Algorithms, Quantum Information Theory, Quantum Cryptography
- Cryptography: Provable security, Post-Quantum Cryptography such as Lattice-based, Isogeny-based, and Code-based
- Information and Communication Theory: Quantum Communication, Error Correcting Codes, Theoretical Information Theory, Computer Networks

Relevant Coursework

Sharif University

Programming in C/C++ 20.0/20.0, Advanced Programming in Java 20.0/20.0, Logical Circuits 19.1/20.0, Probability and Applications 20.0/20.0, Engineering Statistics and Probability 20.0/20.0, Data Structures 18.1/20.0, Linear Algebra 20.0/20.0, Algebra I 18.8/20.0, Numerical Analysis 19.1/20.0.

Cryptography Introduction to Modern Cryptography 19.6/20.0, Lattice-based Cryptography 18.2/20.0, Cryptography Seminars 20.0/20.0.

Information Systems	Information and Coding Theory 20.0/20.0, Data Transmission 20.0/20.0, Computer Networks 17.9/20.0, Probability Theory 20.0/20.0, Quantum Communication I 19.7/20.0, Quantum Communication II 19.9/20.0, Quantum Optics N.A/20.0.
Computer Science Theory	Theory of Formal Languages and Machines 20.0/20.0, Design of Algorithms 19.4/20.0, Theory of Computation 18.5/20.0, Artificial Intelligence 19.5/20.0, Machine Learning N.A/20.0, Functional Programming Languages N.A/20.0, Quantum Computing and Information II N.A/20.0.

Honors

	Among top 10 percent of class in ChE department, 2020
Concours	Ranked 72nd in Mathematics and Physics University Entrance Examination, 2019
CCC	Ranked top 100 in Canadian Computing Competition, 2018
ECOO	Semi-finalist in Educational Computing Organization of Ontario, 2018
AP Calculus	Scoring 5.0/5.0, 2018

Languages

Proficient with

native	Persian
fluent	English

Have Experience With

familiar	Turkish