Ali Yousefi

Birth Date: 03-06-2002 | +989032700749 | 8aliyousefi@gmail.com | linkedin

Education

Sharif University of Technology Expected May 2025

*Bachelor of Electrical Engineering (**GPA: 19.44 / 20.00**) (Rank 2)*

- **Selected Courses:** Machine Learning: 20/20, Communication Systems: 20/20, Convex Optimization: 20/20, Fundamentals of Cryptography and Network Security: 20/20, Mathematical Methods in Engineering: 20/20, Statistics and Probability: 19.9/20, Digital Signal Processing: 19.9/20, Signals and Systems: 19.8/20, Object Oriented Programming: 20/20 and Fundamentals of Programming 20/20.

Atomic Energy High School May 2020

Diploma in Mathematics and Physics

Honors and Awards

- **Gold Medal (1st place) in national physics Olympiad (September 2019)** : International competition was canceled due to the coronavirus
- **Rank 2 in BSc** among all of the electrical engineering graduated students (about 130 persons)at Sharif University of technology, Tehran, Iran.
- **4th place in national electrical engineering student Olympiad (September 2024)**

Experience

Teaching Assistant

During my BSc, I served as a Teaching Assistant for several courses, including:

- **Electrical Circuits (3 semesters):** Collaborated with Prof. Shamsollahi (Head TA), Prof. Bayat (Head TA), and Prof. Fotowat (Laboratory TA). Contributed to course improvement by modifying and adding laboratory instructions.
- **Machine Learning (1 semester):** Assisted Prof. FatemiZadeh in holding homework solution sessions.
- **Signal And Systems (1 semester):** Assisted Prof. Amiri in holding homework solution sessions.
- **Mathematical Methods in Engineering (2 semesters):** Assisted Prof. Amiri in practical homework assignments.
- **Statistics and Probability (2 semesters):** Worked with Prof. Yasaayee on designing and grading homework assignments, and collaborated with Prof. Mojahedian on quiz design.
- **Theory of Circuits (2 semesters):** Assisted Prof. Amiri with practical homework and collaborated with Prof. Shamsollahi on homework assignments.
- **Logical Circuits (1 semester):** Worked with Prof. Shabani as a quiz grader.
- **Introduction to Electrical Engineering (1 semester):** Worked with Prof. Shamsollahi to introduce the university, department, and our major to new students.

Teaching Jan 2019 – present

- Taught physics to the national Olympiad team of Iran to participate in IPHO competitions and also designed and graded the official national Olympiad exams.
- Taught physics of Olympiad to Students at top High schools of Iran such as Atomic Energy, Allameh Tabatabaei and Salam.

Cooperation in organizing the 31st International Conference on Electrical Engineering.

Research Interests

I have a strong background in statistics, mathematics, and physics, which has shaped my research interests, including:

- Graph Learning, Optimization methods, Graph Signal Processing, Deep Learning, Large Language Models, Signal Processing and Generative AI Models.

Publications

- **Graph learning with high frequency components (on going)**:

  The article was co-authored by myself and Arman Lotfalikhani, Prof.Babaei-zadeh, and is currently under review by our supervisor. We introduce a new set of cost functions for the problem of smoothness-based graph learning. Next, we provide hyper parameter reduction results and ADMM-based optimization algorithms. These algorithms come with proofs of convergence, and we show that by utilizing reasonable assumptions, the per-iteration complexity of our method remains the same as previous algorithms.

Projects

Graph Source Separation and Graph Learning | *Prof.Babaei-zadeh* DSP Laboratory

- In this project we used convex optimization and graph signal processing to mutually separate two graph signals and learn their graphs.

Graph Clustering | *Statistics and Probability course Project*

- In python we implemented different graph clustering methods.

Index modulation and FMCW | *Communication Systems course Project*

- We transmitted the chirp sequence through an AWGN channel and then implemented the whole transceiver python to use index modulation in context of Frequency-Modulated Continuous-Wave Joint Radar and Communications.

Machine Unlearning and Private Training | *Machine Learning course Project*

- In Machine Unlearning, we implemented the SISA Algorithm and then evaluated its effectiveness using Membership Inference Attack and after all we trained a model with privacy enhancements and compared the MIA accuracy for both trained model and base model.

Programming Projects | *Object Oriented Programming and Fundamental of Programming Courses Projects*

- We used java and C++ to implement Farm Frenzy and Wall breaker games in order to learn the basics of programming.

Thermal Image Processing | *Prof.Fakharzadeh*

- We Improved the quality and resolution of output image using different methods such as edge detecting.

Coupling Superconducting Qubit | *Prof.Fardmanesh* CERL Laboratory

- We worked on the designing and simulating 2 coupled Qubits.

Human Blood Glucose Measurement | *Prof.Fardmanesh* CERL Laboratory

- We prepared samples and used machine learning to indirect measuring the Blood Glucose based on Infra-Red Spectroscopy.

Extracurricular experience

I possess skills in playing both the santur and setar, showcasing my musical abilities. Additionally, I engage in sports such as taekwondo and swimming at a intermediate level. Notably, I achieved a **Bronze Medal (3rd place)** in a regional Tae Kwon Do competition, reflecting my dedication and competitive spirit in athletics.

Skills

Languages: Persian (native), English (Intermediate), Turkish (basic), Arabic (basic)
Programming Skills: C/C++, Python, Java, MATLAB, Assembly, Verilog, Cadence, COMSOL, LaTeX
Development Frameworks: Pytorch,Networkx,Scipy,Numpy,Pandas,Pygsp,Cvxpy,Sklearn,Qiskit-metal
Soft Skills: Accurate, Adaptable, Confident, Hard-working, Innovative, Pro-active