MohammadJavad Vaez

Curriculum Vitae

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Google Scholar

Education

2022–Now **M.Sc. in Computer Science (AI Specialty)**, *University of Tehran, GPA: 3.82/4*
- University of Tehran is ranked first for computer science in Iran, based on the U.S.News ranking.
- **Thesis:** Sinusoidal Trainable Activation Functions for Implicit Neural Representation

2018–2022 **B.Sc. in Mathematics (Second Major)**, *University of Isfahan, GPA: 3.84/4*

2017–2022 **B.Sc. in Computer Engineering (Hardware Specialty)**, *University of Isfahan, GPA: 3.75/4*
Final Project: Applications of Group Theory and Automata Theory in Faster Searching of State Space

2013–2017 **High School Diploma in Mathematics and Physics**, *National Organization for Development of Exceptional Talents (NODET)*

Publications?

- *Sinusoidal Trainable Activation Functions for Implicit Neural Representation:* Currently under review for an A* AI conference.
  - The submission is compliant with the conference's double-blind review process and has not been uploaded to *arXiv*.
- *An alternative approach to inverse $\mathcal{Z}$-transform of rational functions:*
  - Paper Link - under review of Journal of Engineering Mathematics
  - Implementation: GitHub Repository
- *Random generation of group elements using combinatorial group theory and automata theory, along with a hardware example:*
  - Paper Link - to be submitted in a prestigious journal

Honors and Awards

2024 **Reviewer**, ICLR 2025 (International Conference on Learning Representations) – one of the highest-impact conferences in machine learning and AI research.

2022 **First Rank among Math Students (Class of 2017 and 2018)**, University of Isfahan.

2022 **Admitted to the Master's Program in Mathematics, Sharif University of Technology**, through direct admission based on academic excellence; declined the offer.

2020 $1.2 Reward Check from Donald Knuth for identifying a mistake in his book, *The Art of Computer Programming*[1]

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[1] I included this in my CV because it was a unique and memorable reward.

[Link of explanation](#)

Teaching Experience

Fall 2024 — **TA for Advanced Theory of Algorithms**, University of Tehran, Instructor: Dr. Morteza Mohammad-Noori

Fall 2018 — **TA for Calculus II**, University of Isfahan, Instructor: Dr. Ehsan Hakimian

Computer Skills

C/C++, Matlab, Python, LaTeX, AVR Microcontrollers, Hspice, VHDL, Proteus

[GitHub Project Management and Collaboration](#)

Languages

Persian — Native

English — Fluent, IELTS score: 7 (Speaking: 7.5)

Important Projects or Presentations

Realtime Embedded Systems: [LinkedIn Post](#)

Buchberger Algorithm and Gröbner Basis in Inverse Kinematics of Manipulators: [YouTube Video (Persian presentation)](#)

Persian presentation of the paper "Learning the travelling salesperson problem requires rethinking generalization": [YouTube Video](#)

Generally, this is my YouTube account on which I upload my presentations: [youtube.com/@mohammadjavadvaez](#)

This is my Stack Exchange account and you can see my activity: [My Activity on Stack Exchange](#)

Research Interests

Areas of Expertise:
- Machine Learning
- Neural Networks
- Graph Neural Networks (GNN)
- Signal Processing
- Randomized Algorithms
- Automata Theory
- Control Theory
- Stochastic Mathematics (including Probabilistic Graphical Models, Stochastic Cellular Automata, etc.)

Areas of Interest:
- Bioinformatics
- Quantum Computing
- Geometric Deep Learning