MohammadJavad Vaez

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Google Scholar Website

Curriculum Vitae

For the most updated CV, visit here.

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)*

Research Experience

2025 **Analysis of the neurons of larval zebrafish**, *In collaboration with the Computational Neural DNA Dynamics Lab (CNDD) at UCSD*

2024-2025 **Sinusoidal Trainable Activation Functions for Implicit Neural Representation**, *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*.

2024 **An alternative approach to inverse $\mathcal{Z}$-transform of rational functions**, *Paper Link - Under review for the Journal of Engineering Mathematics*
- Implementation GitHub Repository

2021-2023 **Random generation of group elements using combinatorial group theory and automata theory**, *Paper Link - To be submitted to 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]

Link of explanation

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

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, HTML, CSS

Hardware Engineering: Hspice, VHDL, Proteus, AVR Microcontrollers

Software Engineering: 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

Presentation of the paper "BrainGB: A Benchmark for Brain Network Analysis with Graph Neural Networks": PDF File

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
- (Computational) Neuroscience

Creative Works

I compose Persian poems. You can read some of my works here.