

Aras Valizadeh

COMPUTER ENGINEERING STUDENT · MACHINE LEARNING RESEARCHER

Tehran, Iran

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Education

Shahid Beheshti University

Tehran, Iran

B.SC. IN COMPUTER ENGINEERING

Sep. 2022 – Present

- GPA: 19.13/20
- Selected coursework: Advanced Programming (20/20), Introduction to Machine Learning (20/20), Operating Systems (20/20), Computer Architecture (20/20), Data Structures (20/20), Linear Algebra (20/20), Artificial Intelligence (19.75/20), Computer Networks (20/20), Probability and Statistics (20/20).

Allameh Helli 3 High School (Sampad)

Tehran, Iran

DIPLOMA IN MATHEMATICS

Sep. 2019 – Jun. 2022

- Final average: 19.84/20
- Studied at a school affiliated with the National Organization for Development of Exceptional Talents (NODET).

Publications

PUBLISHED

Salimi-Badr, A., Valizadeh, A., and Parchamijalal, M. M. 2026. "GRIFFIN: A Gated Relaxing Interaction-Aware Fuzzy Framework with Integrated Negation-Aware Neurocomputing to Learn Incomplete and Non-Separable Rules for Classification." *Neurocomputing*, 660: 131866. doi:10.1016/j.neucom.2025.131866

Valizadeh, A., Baroutian, B., Taraghi, F., Mohammadi, Z., Aghaei, A., and Ebrahimi Moghaddam, M. 2026. "An Extended Table Detection Framework for Enhanced Recognition of Persian Tables in OCR Systems." *2026 International Interdisciplinary Conference on Artificial Intelligence: Engineering, Health, Finance and Humanities (IICA)*, Tehran, Iran, pp. 1–6. doi:10.1109/IICA170155.2026.11620979

IN PREPARATION

"A Systematic Review on Fuzzy Broad Learning Systems." Manuscript in preparation.

Research Experience

Neuro-Fuzzy Machine Learning Research

Shahid Beheshti University

UNDERGRADUATE RESEARCHER

2025 – 2026

- Contributed to the design and implementation of GRIFFIN, a neuro-fuzzy learning framework for classification with incomplete and non-separable fuzzy rules.
- Designed and conducted experiments to evaluate the proposed framework and analyze its classification performance.
- Contributed to the research methodology, implementation, experimental analysis, and manuscript preparation.
- Research resulted in a peer-reviewed publication in *Neurocomputing*.

Image Processing and Computer Vision Laboratory

Shahid Beheshti University

UNDERGRADUATE RESEARCHER

2026

- Proposed the original research idea for an extended table detection framework aimed at improving the recognition of Persian tables in OCR systems.
- Designed and implemented the proposed framework and contributed to its experimental evaluation.
- Conducted the research at the Image Processing and Computer Vision Laboratory under the supervision of Dr. Mohammad Ebrahim Moghaddam.
- Served as first author on the resulting peer-reviewed paper, published in the 2026 International Interdisciplinary Conference on Artificial Intelligence (IICA) and indexed in IEEE Xplore.

Teaching Experience

Introduction to Machine Learning

Dr. Salimi-Badr

HEAD TEACHING ASSISTANT

Spring 2026

Linear Algebra
HEAD TEACHING ASSISTANT

Dr. Malek
Spring 2026

Advanced Programming
HEAD TEACHING ASSISTANT

Dr. Vahidi-Asl
Spring 2024 – Present

Artificial Intelligence
TEACHING ASSISTANT

Dr. Salimi-Badr
Fall 2025

Artificial Intelligence
HEAD TEACHING ASSISTANT

Dr. Abdoos
Spring 2025

Digital Logic Circuits
TEACHING ASSISTANT

Dr. Mahdiani
Fall 2024 – Spring 2025

Discrete Mathematics
HEAD TEACHING ASSISTANT

Dr. Abdoos
Fall 2024

Computer Architecture
TEACHING ASSISTANT

Dr. Rahmati
Spring 2024 – Fall 2024

Data Structures
TEACHING ASSISTANT

Dr. Alidoost-Nia
Spring 2024

Presentations

Thread Programming. Guest Lecutre, Advanced Programming Course.

Introduction to NumPy. Technical workshop, Linear Algebra Course.

Review of Artificial Intelligence Course Chapters. Five instructor-led review sessions, Artificial Intelligence Course.

End-to-End Machine Learning Project. Technical workshop, Introduction to Machine Learning Course.

Work Experience

Sama Soft
BACK-END DEVELOPER

Tehran, Iran
Aug. 2023 – Jan. 2024

- Developed and tested microservice-based backend systems using Node.js and Express.js.
- Contributed to implementing and maintaining backend services and application APIs.

Selected Projects

Robust Vision-Based Sudoku Solver

GitHub

- Developed an end-to-end computer vision pipeline for detecting, rectifying, recognizing, and solving printed Sudoku puzzles from real-world images.
- Implemented board detection, perspective correction, cell extraction, and CNN-based printed digit recognition using OpenCV and PyTorch.
- Designed a constraint-aware recovery mechanism that combines OCR confidence scores with Sudoku constraints to correct recognition errors.
- Projected the solved digits back onto the original image using inverse perspective transformation.

MIPS Pipeline Processor

GitHub

- Designed and implemented a pipelined MIPS processor in Verilog as a computer architecture project.
- Implemented the processor datapath and core components required for pipelined instruction execution.
- Simulated and tested processor behavior to verify correct execution across pipeline stages.

- Developed an LLM-based system for extracting, chunking, retrieving, and summarizing scientific papers from PDF documents.
- Implemented semantic retrieval using sentence embeddings and ChromaDB, enabling question answering and targeted extraction of methodology and results from scientific papers.
- Integrated both OpenAI models and locally hosted Llama models, providing flexible cloud-based and local inference.
- Built an interactive Streamlit interface supporting document upload, summarization, methodology and results extraction, and question answering.

Voluntary Activities

Managing Editor - SBU CSE Publication March 2024 - June 2027

We are actively producing podcasts and journals for our faculty's publication, guided by Prof. Shams Aliee.

Secretary Professional Activities Committee – IEEE Iran Section Since 2025

Responsible for coordinating professional and technical activities within the IEEE Iran Section, including event organization, communication with members.

Head of Student Committee – Artificial Intelligence Conference (IAI) Served as a Head of the Student committee for the Shahid Beheshti University Artificial Intelligence Conference (IAI) under the supervision of Dr. Salimi-Badr.

Skills

Programming Languages: Python, Java, C, JavaScript, MATLAB, Assembly, Verilog, Arduino, SQL, Git

Frameworks/Libraries: PyTorch, OpenCV, NumPy, Pandas, Scikit-learn, Matplotlib, Node.js, Express.js, Flutter, Svelte

Soft Skills: Teamwork, Leadership, Problem Solving, Presentation

Languages

Languages **Persian (Native), Kurdish (Native), English (Upper-Intermediate, B2)**