

ALIREZA JANBAZ

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RESEARCH INTERESTS

- Software Engineering for AI (SE4AI) and AI for Software Engineering (AI4SE)
- Security in Software Systems and Large Language Models
- Metaheuristic Optimization and Feature Selection
- Resource Allocation and Task Scheduling in Cloud-Edge Systems
- Applied Machine Learning and Ensemble Learning

EDUCATION

M.Sc. in Software Engineering

Sep 2025 – Present

Islamic Azad University, Central Tehran Branch | Current GPA: 17.42 / 20.00

B.Sc. in Biomedical Engineering

Sep 2019 – Jul 2024

Rouzbahan University | GPA: 17.00 / 20.00

Thesis: "Coronary Artery Disease Detection using PCA and CNNs"

RESEARCH EXPERIENCE

A Redundancy-Aware Hybrid Feature Selection Framework Using Mutual Information Clustering and Enhanced Slime Mould Optimization

Manuscript in Submission

- Co-developed a hybrid feature selection framework combining **mutual information clustering** with an enhanced **slime mould optimization** algorithm to reduce feature redundancy.

Recent Advances in Resource Allocation and Task Scheduling for Heterogeneous Cloud-Edge Systems [2025/2026]

Survey Paper, M.Sc. Coursework — Advanced OS

- Reviewed and categorized recent **resource allocation** and **task scheduling** algorithms for heterogeneous **cloud-edge computing** systems.
- Identified open challenges and research gaps across latency-aware, energy-aware, and QoS-aware scheduling strategies.

Requirement Analysis

[2025/2026]

Article, M.Sc. Coursework — Advanced Software Engineering

- Analyzed **requirement elicitation** and **requirement analysis** techniques used in modern software engineering practice.
- [Add your specific contribution or case study, if any]

Hierarchical Music Genre Classification Using XGBoost and Audio Feature Analysis

2025

- Built a machine learning pipeline for music genre classification using 114,000 Spotify tracks and 15 audio/acoustic features.
- Designed a hierarchical genre-mapping strategy, consolidating fine-grained genres into six higher-level categories: Pop, Rock/Metal, Electronic, Latin, Hip-Hop/R&B, and Classical.
- Trained and evaluated an **XGBoost** multiclass classifier using stratified train/test splitting and tuned hyperparameters.
- Assessed performance via accuracy, precision, recall, and F1-score, achieving 75% test accuracy and a 0.75 weighted F1-score.

Multivariate Filter Feature Selection with Stacking-Based Ensemble Learning for Network Intrusion Detection

2025

Journal Article — The Journal of Supercomputing — DOI: 10.1007/s11227-025-07609-9

- Co-developed a **multivariate filter feature selection** method combined with a **stacking-based ensemble learning** architecture to improve network intrusion detection.
- Published as a peer-reviewed journal article in The Journal of Supercomputing (2025).

Coronary Artery Disease Detection using PCA and CNNs

2024

B.Sc. Thesis — Rouzbahan University

- Developed an AI system for detecting coronary artery disease from medical imaging data.
- Applied **Principal Component Analysis (PCA)** for feature selection and dimensionality reduction.
- Trained a **Convolutional Neural Network (CNN)** for classification, achieving 90% accuracy.

PROFESSIONAL EXPERIENCE

WebCore — Frontend Software Engineer

Mar 2025 – Present

Internship: Mar 2025 – Sep 2025 → Full-time: Sep 2025 – Present | Next.js, TypeScript, Tailwind CSS, Redux Toolkit, Framer Motion

- Converted from a 6-month internship into a full-time engineering role based on performance.
- Built the frontend for a tour-reservation platform using **Next.js, TypeScript, Tailwind CSS, Redux Toolkit**, and **Framer Motion**, including booking flows and animated UI components.

Freelance Software Development Team — Backend Developer

2023 – 2025

Team of 2, with Mahmood Heidari (Full-Stack Developer)

- Worked as the backend developer in a two-person freelance team throughout 2023–2025, partnering with Mahmood Heidari (Full-Stack Developer) to deliver client projects.
- Built the backend for the team's CI/CD automation tool (Jun–Oct 2024), combining **Golang** services with **Python** scripting for pipeline orchestration, backed by **PostgreSQL** and containerized with **Docker**.

SELECTED PROJECTS

Weather Analytics Dashboard

Aug 2026

Personal Project

- Built a personal weather-analytics dashboard using **Next.js, Zustand, Axios, Framer Motion**, and **MapLibre**, with interactive map-based visualization and animated UI transitions.

Blue-Green Deployment Pipeline

[2025/2026]

M.Sc. Project — [add tools: e.g. Docker, Kubernetes, Nginx, CI tool]

- Designed and implemented a **blue-green deployment** strategy to enable zero-downtime releases and safe rollback.
- [Add the specific tools/infra you used — Docker, Kubernetes, load balancer, CI/CD pipeline, etc.]

Veterinary Clinic Management System

Jun 2025 – May 2026

Team of 4, Backend Developer

- Implemented the backend of a clinic management system using a **modular-monolith architecture** in **Golang** with **Iris**.
- Built the **PostgreSQL** data layer with **Redis** caching and containerized all services with **Docker**.

Language Learning App (Decks & Minigames)

Jul 2023 – Jan 2024

Team of 3, Backend Developer

- Designed and implemented the full backend as a **microservices architecture** with **gRPC/Protobuf** for inter-service communication.
- Integrated three data stores (**PostgreSQL, MongoDB, SQLite**) across services depending on data shape and access pattern.

Chess (Terminal-Based Game)

Feb 2023 – Mar 2023

Personal Project

- Built a terminal-based chess game in **Golang**, implementing full game rules and move validation.

Kanban Task Manager

Jun 2022 – Feb 2023

Freelance, Backend Developer

- Implemented the entire backend for a freelance task-management product using **Clean Architecture**.
- Designed the **PostgreSQL** schema and REST API, and containerized the service with **Docker**.

Godash (Go Utility Library)

Mar 2022 – Oct 2022

Open Source, Team of 3

- Implemented core utility functions in **Golang** as part of a 3-person open-source contributor team.

PUBLICATIONS

Hashemi Jouybari, S. M., Janbaz, A., & Esfandiari, A. (2025). A multivariate filter feature selection and stacking-based ensemble learning algorithm for network intrusion detection. The Journal of Supercomputing. DOI: 10.1007/s11227-025-07609-9.

Esfandiari, A., Janbaz, A., & Hashemi Jouybari, S. M. A Redundancy-Aware Hybrid Feature Selection Framework Using Mutual Information Clustering and Enhanced Slime Mould Optimization. (Manuscript in submission).

HONORS & AWARDS

- 1st Place — Quera Golang HamCode Competition (Individual)
- 3rd Place — Quera CodeCup Competition (Team)

TECHNICAL SKILLS

Programming Languages: Golang, Python, TypeScript, JavaScript (Advanced); MATLAB (Intermediate)

Backend Architectures: Microservices, Monolithic, Modular, and Clean Architecture (Advanced)

Databases & Infrastructure: PostgreSQL, MySQL, SQLite, MongoDB, Redis, Docker, Git (Advanced); Kafka (Intermediate); Linux

ML / DL Frameworks: PyTorch, scikit-learn, Keras, metaheuristic algorithms, data visualization, and data preprocessing techniques

ML Algorithms: Support Vector Machines, K-Nearest Neighbors, Neural Networks, Convolutional Neural Networks, Decision Trees, Random Forest, Naive Bayes

Research & Academic Tools: LaTeX, Jupyter/Colab, NumPy, Pandas, Matplotlib/Seaborn, Hugging Face Transformers, Weights & Biases / MLflow

LANGUAGES

English: Advanced — IELTS Overall 7.5 (Listening 8.5, Reading 7.5, Writing 7.0, Speaking 6.5)

German: Pre-Intermediate (A2)

REFERENCES

Ahmad Esfandiari — [Title, Affiliation, esfandiari.ahmad@gmail.com]

Danial Seifi Makrani — [Title, Affiliation, danial.seifi2@gmail.com]