

Soroush Jaberi

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EDUCATION

M.Sc. in Artificial Intelligence | Karaj Islamic Azad University | 2023 – Present

Overall GPA: 4.0 / 4.0 (Top of Class)

Thesis Status: Currently preparing for defense (Expected: Summer 2026)

Relevant Coursework: Machine Learning (20/20), Neural Networks & Deep Learning (20/20), Image Processing (19.5/20)

B.Sc. in Computer Engineering | Karaj Islamic Azad University | 2019–2023

Last 2 Years GPA: 3.81 / 4.0 (Overall: 3.74/4.0)

Relevant Coursework: Artificial Intelligence (20/20), Computer Graphics (19.5/20), Data Mining (20/20), Algorithm Design (20/20)

RESEARCH EXPERIENCE

Enhancing Sentiment Analysis via Ensemble Methods (BERT + VADER)

Soroush Jaberi, Zeinab Alimardani, Amineh Amini | Status: Under Review

- Designed a hybrid sentiment analysis framework combining transformer-based contextual embeddings (BERT) with lexicon-based scoring (VADER).
- Integrated deep learning representations with rule-based polarity signals to enhance sentiment analysis pipelines.
- Demonstrated the reliability of hybrid pipelines for real-world Natural Language Processing (NLP) applications.

A Systematic Mapping Study on Deep Learning-Based Biomedical Image Segmentation Techniques

Soroush Jaberi, Amineh Amini | Status: In preparation (Target: Artificial Intelligence Review)

- Conducted a systematic survey of deep learning architectures across biomedical imaging modalities.
- Analyzed supervised, semi-supervised, and unsupervised methods, focusing on evaluation metrics and clinical relevance.
- Identified key challenges in 3D architectures and standardized evaluation protocols, outlining future directions for medical image analysis research.

RESEARCH INTERESTS

- **Generative AI & Large Language Models:** Generative modeling, transformer-based architectures, and retrieval-augmented generation (RAG)
 - **Computer Vision & Image Modeling:** Deep learning for image analysis and segmentation, with interest in generative and synthesis tasks
 - **Efficient Machine Learning:** Model optimization and scalable architectures for efficient training and inference
 - **Information Retrieval:** Embedding-based retrieval systems and vector databases
 - **AI for Healthcare:** Deep learning approaches for biomedical image analysis and segmentation
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TECHNICAL SKILLS

Programming Languages: Python, Java, SQL, JavaScript, HTML, CSS.

Machine Learning & Deep Learning: PyTorch, TensorFlow, scikit-learn, NumPy, pandas, OpenCV, NLTK.

Generative AI and LLMs: Retrieval-Augmented Generation (RAG), LLM-based applications (e.g., sentiment analysis, intelligent assistants)

Research & Modeling: LightGBM, XGBoost, Statistical Analysis (Minitab), Data Mining.

Database & IR: ChromaDB (Vector Databases), Embedding-based retrieval systems, scalable data indexing

Development Tools: Git/GitHub, Linux (Ubuntu/Debian), Anaconda, Jupyter Notebooks, PyCharm, VirtualBox/VMware.

SELECTED PROJECTS

- [Lung-Tumor-Segmentation-Using-PyTorch-Deep Learning](#)
- [Liver-Tumor-Segmentation-Using-PyTorch-DeepLearning](#)
- [Langchain LLM Retrieval QA: A retrieval-based QA system using Langchain and large language models to process and answer questions from documents](#)
- [Comprehensive NLP - Sentiment Analysis Algorithms](#)
- [Persian-sentiment-analysis-using-FastText-Model-NLP](#)
- [Live Bicep Counter - computer vision](#)
- [GUI application for image processing](#)
- [PDF-Similarity-Comparison](#)
- [Movie-Recommendation-And-Analysis](#)
- Detecting Motion (using OpenCV)
- Playing the Audio/Text to Speech (Using pyttsx3)
- Webcam motion detector
- Interactive web graph

EXPERIENCE

Teaching Assistant — Machine Learning (Graduate Level)

Karaj Islamic Azad University | 2023-2025

- Supported graduate students in implementing machine learning workflows and models.
- Assisted in designing and evaluating projects in supervised/unsupervised learning, as well as model evaluation.
- Led Q&A sessions bridging theoretical concepts and practical implementation.

Teaching Assistant — Data Mining

Karaj Islamic Azad University | 2023–2025

- Collaborated with the course instructor to design and evaluate assignments emphasizing data preprocessing, feature selection, classification, clustering, and pattern discovery.
- Guided students bridge the gap between theoretical concepts and real-world applications in AI and analytics.

Teaching Assistant — Algorithm Design

Karaj Islamic Azad University | 2022–2023

- Assisted in developing and assessing challenging problem sets and assignments requiring students to design efficient algorithms and conduct rigorous complexity analysis.
- Emphasized applications relevant to artificial intelligence and large-scale data processing to strengthen students' problem-solving skills.

Tehran Telecommunication Company (TCT) Research & Network Internship | 2022 – 2023

- Analyzed network connectivity data and monitored high-volume traffic to ensure system stability.
- Conducted research on cloud computing and networking optimization, gaining experience in scalable infrastructure—a key component of training large-scale AI models.

LANGUAGE SKILLS

English: Advanced (academic reading and technical writing)

Persian: Native

REFERENCE

- **Dr. Amineh Amini**
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