Amir Saberhabibi

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Github LinkedIn Website

Education

- **University of Guilan** Rasht, Iran
  B.Sc in Computer Science *Sep. 2020 – Jun. 2024*
  - **B.Sc. Computer Science Project (Mono2Micro):** Applying DBSCAN to decompose monolithic applications into microservices, leveraging NLP for semantic feature linking to create a well-structured architecture.
  - **GPA:** 16.29/20 (3.3/4) - (3.7/4 for the last two academic years)

Research Interests

- **Areas:**
  Machine Learning, Deep Learning, Natural Language Processing, Software Engineering, Data Science, and Information Retrieval.
- **Interests:**
  Generative AI in Text and Code, Big Data, Mining Software Repositories, Large Language Models in Software Analysis, AI Ethics and Intent Detection, Software Ecosystems Analysis, Knowledge Graphs, Retrieval-Augmented Generation (RAG), Recommender Systems, AI-driven Decision-making, and Explainable AI (XAI).

Experience

- **Undergraduate Research Assistant** (remote) Utrecht, NE
  AI-Driven Decision Models in SE: A Focus on Software Package Selection *Sep. 2023 - Present*
  - This master's project aims to unravel insights into the architecture and dynamics of software ecosystems by identifying frequent combinations of software packages, technologies, and code idioms.
  - The outcome of this project is a context-aware software package recommender system that functions, using a combination of retrieval-augmented generation (RAG) and a knowledge graph design.

  Topics: Mining Software Repositories, NLP, LLMs, Knowledge Graphs

- **Teaching Assistant** Rasht, Iran

  Database Design (SQL) Course *Oct. 2023 - Jan. 2024*

  - Provided guidance for students to design ERD and SQL Querying. (Fundamentals and practical level)

- **Teaching Assistant** Rasht, Iran

  Advanced (Python) Programming Course *Oct. 2021 - Jul. 2023*

  - As a member of the teaching assistants team for the course 'Advanced Programming' over four semesters (AP14001, AP14002, AP14011, AP14012), to around 60 students under the guidance of Dr. Sadegh Eskandari, I facilitated students' comprehension of Python programming components.
  - Responsibilities included conducting tutorial sessions (in offline and online format), aiding with problem-solving, and ensuring clarity on course materials.

Following sections items are clickable

CERTIFICATIONS

- **Coursera** MOOC

Python for Data Science, AI and Development	*Issued Jul. 2023*
Introduction to Machine Learning	*Issued Jul. 2023*
SQL for Data Science	*Issued Jul. 2023*
Supervised Machine Learning: Regression and Classification	*Issued Aug. 2023*
Advanced Learning Algorithms	*Issued Sep. 2023*
Unsupervised Learning, Recommenders, Reinforcement Learning	*Issued Feb. 2024*
Machine Learning Specialization	*Issued Feb. 2024*

SELECTED PROJECTS

- **MetaML**

  Metaheuristic-Based Neural Network Optimization Tool

  - This project is designed to train neural networks using different optimization algorithms (Backpropagation, Genetic Algorithm, and Particle Swarm Optimization) and compare their results. The app provides an interface space to experiment with these algorithms and visualize their performance.
  - The results could be analyzed to retrieve insights using the Llama3-70b Large Language Model.

  Topics: Deep Learning, Machine Learning, Optimization, ANNs, LLMs

- **NTFA: Network Traffic Flow Analysis**

  A Graph-based Integration of Network Traffic Flow Analysis (Case Study)

  - This project aims to provide tools for better network analysis and visualization using graph-based algorithms (currently Dijkstra).

  Topics: Optimization, Graph Algorithms, Shortest Path Algorithms

Other programming tools

- **Deep Learning Frameworks:** PyTorch, Keras, Tensorflow.
- **Python:** Sci-kit, Pandas, Numpy, NetworkX, Ploty, Matplotlib, etc.
- **NLP Libraries:** SpaCy, NLTK, Hugging Face Transformer.
- **LLM APIs:** OpenAI, Vertex Anthropic Claude, Cohere, Google Gemini API, Mistral, Groq, etc.
- **Web Development:** Django, HTML, CSS, React.js.
- **Deployment Tools:** FastAPI, Streamlit, Flask.

Honors and Awards

- **University of Guilan Programming Competition (UGPC):**
  Placed 2nd out of 36 competitor teams in the UGPC, which is a university-level contest for computer science students.
- **Class Ranking at University:**
  Finished in the top 10 percent of graduating students.
- **University Entrance Exam:**
  Finished in the top 3 percent of all candidates from a 300,000-participant examination.
- **Provincial Music Solo Competitions**
  Placed 2nd in the provincial competition for Santour (a Persian musical instrument).

Hobbies and Activities

- **Graphic design (Logos, Illustrations, Brochures, Motiongraphy):**
  Familiar with Adobe Illustrator, Adobe Photoshop, Adobe After Effect, Blender, etc
- **Music and Instruments**
  I sometimes play the ”Santour”, which is a Persian musical instrument. I also enjoy creating music on Sibelius or FL Studio.
- **Teaching Music**
  Taught music theory to a range of 20 students from 2016 to 2020, but I still like it.

REFERENCES

- **Dr. Maziar Salahi (Professor)**
  Department of Mathematical Sciences, University of Guilan, Rasht, Iran
  Email: salahim@guilan.ac.ir
- **Dr. Ali Jamalian (Assistant Professor)**
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