Amir Saberhabibi

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Github LinkedIn

EDUCATION

- **University of Guilan** Rasht, Iran

  B.Sc in Computer Science *Sep. 2020 – Jun. 2024*

  - **Passed courses in Computer Science field:** Calculus, Advanced (Python) Programming, Data Structures and Algorithms, Operating Systems, Numerical Linear Algebra, Numerical Analysis, Design and Analysis of Algorithms, Computer Architecture, Compilers, Statistical Methods, Linear Optimization, Database Design (SQL), Artificial Intelligence, Data Mining, Computational Intelligence (Deep Learning)
  - **B.Sc. Computer Science Project (Mono2Micro):** Implementing a DBSCAN-based method to decompose Monolithic applications to Microservices, while applying Natural Language Processing techniques and methodologies as a key component for semantic-linking of the application features, to create a well-structured microservice architecture.
  - **GPA:** 16.29/20 (3.3/4) - (3.9/4 for the last two academic semesters)

EXPERIENCE

- **Undergraduate Research Assistant** (remote) Amsterdam, 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.
  - This project is supervised by Dr. Siamak Farshidi (University of Amsterdam), and Dr. Sadegh Eskandari (University of Guilan)

  Technologies: Python, GitHub, Neo4j, Rest-APIs.

  Theory: Context-Aware Recommendations, NLP, LLMs, Software Ecosystem, 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)

  Technologies: SQL, ERD

  Skills: Teaching

- **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.

  Technologies: Python, Git, GitHub.
  Skills: Teaching, Supervising, Teamwork

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.

  Technologies: Python, Streamlit
  Theory: 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).

  Technologies: Python, NetworkX
  Theory: Optimization, Graph Algorithms, Shortest Path Algorithms

Other programming tools

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

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, 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).

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 all entry 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)**
  Department of Computer Sciences, University of Guilan, Rasht, Iran
  Email: ali.jamalian@guilan.ac.ir
- **Dr. Sadegh Eskandari (Assistant Professor)**
  Department of Computer Sciences, University of Guilan, Rasht, Iran
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- **Dr. Hashem Saberi Najafi (Associate Professor)**
  Department of Mathematical Sciences, University of Guilan, Rasht, Iran
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- **Dr. Siamak Farshidi (Research Fellow)**
  Department of Information and Computer Science, Utrecht University, Utrecht, The Netherlands
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