Mobina Salavati

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Research Interests

Deep Learning, Machine Learning, Applied Artificial Intelligence, LLMs, Computer Vision

Education

University of Tehran Tehran, Iran
B.Sc. in Engineering Science Sep 2018 – Jan 2023
GPA: 3.43/4.0 (16.17/20), Last 2 years GPA: 3.59/4.0 (16.93/20)

National Organization for Development of Exceptional Talents School Semnan, Iran
High School Diploma in Mathematics and Physics Sep 2013 – Jun 2017

Honors & Awards

- Ranked among the top three undergraduate projects (2023)
- Ranked in the top 0.5% nationwide in the Iranian University Entrance Exam (2018).

Publications

Lee, L., Jeon, J., **Salavati, M.**, Amini, N. "AI-Driven Monitoring of Eyedrop Instillation Adherence in Glaucoma." Submitted.

Research Experience

Research Intern, Lee Language Lab (L^3), Ontario Tech University & University of Toronto Remote/Canada
Supervisors: Dr. Annie En-Shiun Lee, Dr. Muhammad Usman

- Developed a multilingual 3D avatar chatbot for student wellness using NVIDIA Omniverse, Audio2Face, and uLipSync.
- Implemented journaling and task management tools for productivity support.
- Designed and evaluated modular system architecture.

Research Intern, California State University, Los Angeles Remote/USA
Supervisor: Dr. Navid Amini

- Developed a sensor-integrated eyedrop device for adherence monitoring in glaucoma patients.
- Benchmarked ML/DL models (Decision Tree, Random Forest, SVM, LSTM) for prediction accuracy.

Research Intern, CogAI4Sci, National University of Singapore Remote/Singapore
Supervisor: Dr. Dianbo Liu

- Analyzed Humphrey Visual Field (HVF) data to identify patient's visual field issues.

Research Intern, Engineering Science Lab (ESLAB), University of Tehran Tehran, Iran
Supervisor: Dr. Ehsan Maani Miandoab

- Designed a machine vision algorithm for automated surface defect detection.

Undergraduate Research Project, University of Tehran
Supervisors: Dr. Ehsan Maani Miandoab, Dr. Hadi Amiri; Co-advisor: Dr. Navid Amini

- Built a nonlinear DC motor dynamics using NARX for data-driven control of uncertain systems.
- Implemented real-time controller using Arduino and MATLAB for practical validation.

Independent Projects

- Modified FTTH modem firmware for embedded system optimization.

Teaching Experience

Teaching Assistant – Linear Control Systems, University of Tehran
Instructor: Dr. Ehsan Maani Miandoab

- Designed and graded homework, quizzes, and computer-based assignments for 35+ undergraduate students.

Technical Skills

Mastered Languages

- Python

Knowledgeable In

- Java
- C
- C++
- MATLAB

Data Science

- Web Scraping
- Data Cleaning
- Data Visualization
- Statistical Modeling and Prediction

Deep Learning

- CNN
- RNN
- GRU
- LSTM
- Transformers
- Reinforcement Learning

NLP

- Text Classification and Categorization
- Language Modeling
- Large Language Models
- Prompting / Prompt Engineering
- Sentiment Analysis

Packages

- PyTorch
- Hugging Face
- TensorFlow
- Keras
- Scikit-Learn
- NumPy
- SciPy
- Pandas
- Beautiful Soup
- Matplotlib
- Seaborn
- LangChain
- OpenCV

Research

- Presentation Skills
- Project Management
- LaTeX
- Team Work
- Problem-Solving

Embedded/Hardware

- Arduino
- PCB/Schematic design
- RTOS

DevOps

- Git
- Docker

Selected Projects

- Developed an AI-powered assistant using OpenAI API and LangChain.
- Trained and evaluated neural networks with advanced hyperparameter tuning.
- Built a handwriting recognition system using TensorFlow and Keras.
- Implemented unsupervised dimensionality reduction using Principal Component Analysis (PCA).
- Time-series forecasting and comparative analysis using ARMA, ARIMA, LSTM, and GRU deep learning models.
- Designed a genetic algorithm for deciphering encrypted files.
- Applied digital signal processing techniques for noise reduction and audio watermarking.

Languages

English: Fluent (IELTS 6.5: L 7.5, R 6, S 6.5, W 6.5)
Persian: Native