Mobina Salavati

📱 (+98) 9904846078 ✉ mobina.salavati1999@gmail.com 🌐 mobinasalavati.github.io 🐙 mobinasalavati

Education

University of Tehran Tehran, Iran
Bachelor of Science in Engineering Science Sep. 2018 – Jan. 2023
- Overall GPA: 3.24/4.0 (16.17/20)
- GPA last 2 years: 3.39/4.0 (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

2023 Undergraduate project was awarded as **one of the first three tops**.

2018 **Ranked 932nd** among more than 150,000 candidates in Iranian University entrance exam (B.Sc.).

Research Experience

Internship, ESLAB (Engineering Science Laboratory) at the University of Tehran

Supervisor: **Dr. Ehsan Maani Miandoab** | Email Address: e.maani@ut.ac.ir
- Computer vision:
  - Machine Vision Detection Method for Surface Defects

Undergraduate Project at the University of Tehran

Supervisor: **Dr. Ehsan Maani Miandoab – Dr. Hadi Amiri** | Email Address: e.maani@ut.ac.ir – hadi.amiri@ut.ac.ir
- Computer vision:
  - Machine Vision Detection Method for Surface Defects
- Implementation of data-driven control on the system with uncertain dynamics:
  - Nonlinear DC motor modeling with NARX
  - Practical implementation using Arduino board and MATLAB software

Skills

Industry Knowledge	Machine Learning, Artificial Intelligence, Neural Network, Deep Learning, Object-Oriented Programming(OOP).
Programming Languages	Python, C/C++, Java, Matlab, Simulink & Simscape, Verilog, System Verilog.
Frameworks & Libraries	Numpy, Pytorch, Pandas, Keras, Scikit-learn, VPython, OpenCV.
Simulation	Modelsim, Multisim, PSpice, Quartus, Solidwork, AutoCAD.
Operating System	Linux(Ubuntu), xv6, RTOS.
Other Technologies	Jupyter Notebook, Latex, Altium designer(Design PCB and schematic), UML,Arduino, Raspberry Pi, Cubieboard, NanoPi, ESP32, NodeMCU.

Teaching Assistance Experience

Linear Control Systems
Instructor: **Dr. Ehsan Maani Miandoab**
Responsibilities: Homework Designer and Grader, Computer Assignment Grader, Quiz Designer.

Course Projects

Artificial Intelligence
- Machine Learning

  - Predict Future Data Using ARMA and ARIMA models

  - Classification Data with Decision Tree and K-Means Algorithm

  - Dimensionality Reduction and PCA

  - Trains a Neural Network model to Classify Images of Clothing in Fashion MNIST dataset

- Artificial Intelligence

  - Implementation of Informed and Uninformed Search Algorithms

  - Implementation of Minimax Algorithm with Alpha-Beta Pruning

  - Deciphering Encrypted File using Genetic Algorithm

  - Implementation of Naive Bayes Algorithm for Multiclass Classification

  - Model Training, Evaluation and Hyper Parameter Tuning with Scikit-Learn library

  - Use a Feedforward Neural Network Algorithm for Classification MNIST dataset

  - Handwriting Recognition using Tensorflow and Keras

- Neural Network & Deep Learning

  - Implementation of Perceptron, Adaline and Madaline Network

  - Creating a Multilayer Perceptron (MLP) Model to Classify CIFAR-10 dataset images

  - Boston House Price Prediction using MLP Regression

  - Image Segmentation Using Deep Learning

Computer Engineering
- Advanced Programming

  - Introduction to Event Driven Programming in C++ with implementing a game similar to Miniclip

  - Implementing UTunes with a special focus on object-oriented programming principles as a local web application to behave like Spotify in C++

  - Implementing Mafia Game with a special focus on multi file programming and using Makefile

- Operating Systems & Operating Systems Lab

  - Getting familiar with Xv6, its execution, debugging, improving its console by adding some features, and implementing a new program to copy text data from a file to another

  - Implementing new system calls in Xv6, which sleep a process for an arbitrary period using Xv6's ticks, and obtain the current process's pid and its children and grandchildren

  - Implementing multilevel feedback queue scheduling (MFQ), including lottery, HRRN, and SRPF methods, as scheduling levels in xv6

  - Adding synchronization mechanisms to Xv6 to prevent out-of-order execution of processes and use mutex more than once in recursive programs

  - Implementing an ensemble classifier using named and unnamed pipes

- Digital Logic Design

    - Frequency Divider: Designed a frequency divider with 50% duty cycle in Verilog and synthesizing in Quartus
    - Function Generator: Simulated a function generator in Verilog and synthesized in Quartus
    - Clock Adjusting and Noise Eliminator: Synthesized in Quartus
- Computer Architecture

    - MIPS CPU: Designed pipeline MIPS CPU in Verilog and simulated in ModelSim

Other activity:

- Linear Controls

    - Design Controllers with an Arduino

- Mechatronics

    - Program MPU 6050 With Arduino
    - Calculate Kinematics parameters of Serial Robots with python
    - Simulate LR Mate 200ic Robot in Simscape
    - Control a Gazebo simulated Turtlebot3 with MoveIt
- Digital Signal Processing

    - Remove Background Noise from Audio
    - Design of Digital Filters
    - Implementation Kernel Base Image Processing
    - Template Matching & Bleep Censor
    - Implementation Audio Watermark

Relevant Courses

Machine Learning Instructor: **Dr. Ali Kamandi**	17.16/20	**Computer Architecture** Instructor: **Dr. Saed Safari**	17.90/20
Artificial Intelligence Instructor: **Dr. Hakimeh Fadaei**	16.30/20	**Electronic I** Instructor: **Dr. Mohammad Reza Kolahdooz**	17.50/20
Linear Algebra Instructor: **Dr. Hadi Amiri**	20/20	**Electronic I Lab** Instructor: **Dr. Hooriye Khodkari**	18.50/20
Engineering Probability and Statistics Instructor: **Dr. Seyed Mahmood Taheri**	16/20	**Electronic II** Instructor: **Dr. Shahin Jafarabadi Ashtiyani**	19.90/20
Convex Optimization Instructor: **Dr. Hadi Amiri**	15.50/20	**Electronic II Lab** Instructor: **Dr. Mohammad Reza Kolahdooz**	19.00/20
Advanced Programming Instructor: **Dr. Ramtin Khosravi**	16.30/20	**Mechatronics** Instructor: **Dr. Mehdi Tale Masoule**	16.50/20
Operating Systems Instructor: **Dr. Mehdi Kargahi**	15.10/20	**Linear Controls** Instructor: **Dr. Ehsan Maani Miandoab**	17.80/20
Operating Systems Lab Instructor: **Dr. Mehdi Kargahi**	15.10/20	**Operating Research** Instructor: **Dr. Amin Qodosian**	17.50/20
Software Engineering Instructor: **Dr. Fatemeh Qasemi Esfahani**	16.75/20		

Languages

English : Fluent (Sep. 25, 2024)
Persian : Native