

Sajjad Salem

Machine Learning Researcher

Tehran, Iran

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About Me

Experienced Machine Learning engineer and Python developer with over 4 years of experience. A perpetual learner. Holds a Master's degree in Electrical Engineering from Amirkabir University of Technology. Specializes in IoT and Computer Vision projects, showcasing expertise in Python, ARM programming with C/C++ and AI frameworks. Dedicated to delivering inventive solutions with the highest accuracy.

- Website: sajjadsalem.com
- LinkedIn Profile: [in/sajjad-salem](https://www.linkedin.com/in/sajjad-salem)
- Github: github.com/salemsajjad

Educations

Sep 2020 - Jun 2023

M.Sc. in Electrical Engineering

Amirkabir University of Technology- Tehran Polytechnic

Description:

- GPA: 3.42, Final Thesis Grade: A
- [#375 in QS world](#), [#127 in best Engineering](#), #3 Best Engineering in Iran

Sep 2016 - Aug 2020

B.Sc. in Electrical Engineering

Iran University of Science and Technology

Description:

- GPA: 3.2
- [#451 in QS world](#), [#173 in Engineering](#), #4 Best Engineering in Iran

Work Experience

Aug 2020 - Present

Embedded Systems Developer

Pooya Fanavaran Kosar (Tehran)

Description:

- Senior Python Developer specializing in Embedded Systems Development.
- Led the implementation of machine learning algorithms for the Level-1 ADAS project with SAIPA automaker company.
- Designed critical CNN architecture for the Pistachio Sorter project, enhancing computer vision capabilities.
- Camera-based AI projects using NVIDIA Jetson boards.
- Spearheaded projects for Vehicle Finder and Plate Reader technologies in advanced parking systems.
- Developed Python backend for cloud-based system monitoring.
- Proficient in creating IoT applications using ARM STM32 platforms.

(more details on my personal website)

Aug 2017 - Apr 2020

Electronics Engineer

Freelancer (Tehran)

Description:

- Junior Electronic Engineer specializing in C programming.
- Contributed to the Smart Training Rescue Manikin project.
- Implemented IoT applications utilizing ARM STM32 platforms.
- FPGA Internship and hardware design using VHDL.
- Designed PCBs using Altium Designer for various electronic projects.

Publications

Feb 2023 - Dec 2023

InceptionCapsule: Inception-Resnet and CapsuleNet with self-attention for medical image Classification

Submitted to the "IEEE Transactions on Human-Machine Systems"

Jun 2023 - Nov 2023

A hybrid IndRNNLSTM approach for real-time anomaly detection in software-defined networks

Submitted to the "Journal of Computer Science and Technology"

May 2023 - present

Pistachios Defects Recognition using CNN in Agricultural Smart Sorters

(in Prep.)

Research Interests

Artificial Intelligence, Machine Learning, Deep Learning

Computer Vision, Autonomous Vehicles, Robotics Vision

Object Detection, Multi-Object Tracking, Object Recognition

Optimization, Statistics, Mathematical Data Science

Large Language Models, Transformers, Generative AI

Medical Imaging, Medical Information Systems, Ultrasound Imaging

Language

English

C1

Persian

Mother tongue

Skills

Python

Expert

Artificial Neural Networks

Experienced

ARM STM32

Expert

Computer Vision

Experienced

Machine Learning

Experienced

Embedded Linux

Experienced

C

Experienced

Backend Developer

Experienced

Matlab

Experienced

FPGA

Skillful

Altium Designer

Skillful

Electronic Circuit Design

Skillful

Academic Courses

Physics 1 : 3.7/4 | Physics 2 : 3.7/4 | Electronic physics : 3.5/4

Mathematics : 3.5/4 | Electronics : 3.7/4 | Micro Processors: 3.5/4

Computer Architecture Lab : 4/4 | Electronis I, II, III Labs : 3.9/4

Micro-processors Lab : 4/4 | Logic Circuits Lab: 3.9/4

Advanced Engineering Mathematics : 3.6/4 | Microwave II : 3.7/4

Advanced Electromagnetics : 3.8/4 | Radar Systems : 3.6/4

Bachelor's Final Project : Grade A | Master's Thesis : Grade A

Courses

Oct 2023	Advanced Tensorflow Techniques at Coursera
Jul 2023	Self-Driving Cars Specialization at Coursera
Apr 2023	Machine Learning Specialization at DeepLearning.AI
Jun 2022	Convolutional Neural Networks at Coursera
Apr 2022	Advanced Python Programming at Maktabkhooneh
Apr 2022	Neural Networks and Deep Learning at Coursera
Oct 2018	System design with Raspberry Pi at Tehran Institute of Technology
May 2018	Hardware Design with FPGAs at Tehran Institute of Technology
Aug 2017	PCB Design with Altium Designer at Tehran Institute of Technology
Jul 2017	ARM Programming with C/C++ at Tehran Institute of Technology

Projects

Aug 2020 - Present	Karabin Embedded Camera for Pooya Fanavaran Kosar (PFK) Description: Pooya Fanavaran Kosar (PFK) stands as a prominent player in the realm of computer vision technology. Within PFK, I contributed to the development of Karabin—an Embedded Camera System designed for applications in speed traps and smart parking. Karabin distinguishes itself with exceptional precision in plate reading and speed estimation. My involvement extended to programming micro-controllers, and implementing AI and OpenCV algorithms for vehicle detection and plate recognition. Project Link: https://www.cam2vision.com
Aug 2020 - Present	Sampi Sorter for Pooya Fanavaran Kosar (PFK) Description: The Sampi Sorter represents a state-of-the-art sorting solution, meticulously crafted to effectively segregate grains and agricultural produce based on diverse visual attributes. Leveraging advanced technology and artificial intelligence, the Sampi Sorter guarantees unparalleled precision and accuracy in the sorting process, culminating in elevated quality standards and enhanced productivity. In this industrial endeavor, I assumed the roles of both AI CNN model designer and data engineer, spearheading the classification of grains. Project Link: https://www.sorter.ir/en/
Oct 2023	Level-1 ADAS Project for SAIPA and Pooya Fanavaran Kosar (PFK) Description: This Level-1 ADAS project employs a monocular camera in conjunction with an NVIDIA Jetson Nano board. Through over 1.5 years of dedicated research, we successfully developed and fine-tuned AI and Computer Vision algorithms, achieving the targeted performance benchmarks for Forward Collision Warning (FCW), Lane Departure Warning (LDW), and High Beam Assist (HBA) systems. For a visual demonstration, test videos can be found on my personal website
Oct 2023	Karabin Monitoring System for PFK Description: This software efficiently oversees and administers a network of Karabin cameras linked to a server. As one of the key backend developers on this project, I encountered and overcame challenges related to SQL and MongoDB databases, along with implementing HTTP APIs in Python. This experience significantly honed my proficiency in Python development.

Smart Training Rescue Manikin for Sciboom

Description:

This endeavor involved the development of a sophisticated medical smart half-body manikin tailored for Red Cross rescuer training. The manikin facilitates practice in artificial respiration and cardiac resuscitation, incorporating a standardized grading system for enhanced learning. In my capacity as an STM32 programmer, I focused on sensor integration and crafting an intuitive graphical user interface for a compact touchscreen embedded within the manikin.

References

ghorbani@aut.ac.ir	Dr. Ayaz Ghorbani from Amirkabir University of Technology
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milad@vilyatx.com	Dr. Milad Salem from University of Central Florida
mtn.1361@gmail.com	Dr. Mahmood Noghani from Pooya Fanavaran Kosar (PFK)
m_mosavi@iust.ac.ir	Dr. Seyed Mohammadreza Mousavi mirkolaei from IUST
ayatollahi@iust.ac.ir	Dr. Ahmad Ayatollahi from IUST