AliSalehi

Machine Learning Researcher & Software Developer

Summary

I am an AI researcher, pursuing my Ph.D. degree in Computer Engineering. I have expertise and interests in data science and machine learning algorithms, especially deep learning methods for solving vision problems. I have **3+** years of industry research and development experience. My current research is focused on developing deep learning algorithms for analyzing medical images.

Education

Jan 2017–Present
Expected May 2021

Ph.D. Computer Engineering — University of Memphis, Memphis, USA

GPA: 3.98

I am working on developing deep learning algorithms using **tensorflow** in **python** for analyzing medical image sequences.

Sep 2011–Jul 2013

M.Sc. Artificial Intelligence — Sharif University of Technology, Tehran, Iran

GPA: 4.0

Developed a hierarchical feature extraction method in Matlab which uses dictionary learning to encode objects. By using SVM as classifier, the method achieved $\approx 49\%$ (state-of-the-art) accuracy on the dataset.
Related Coursework: Digital Image Processing(A+), Digital Video Processing(A+), Neural Networks & Fuzzy Systems(A+), Statistical Pattern Recognition(A)

Sep 2008–Sep 2010

B.Sc. Software Engineering — University of Omran and Toseeh, Hamadan, Iran

GPA: 3.96

Implemented Cellular Learning Automatons to find Edges of objects in images.

Sep 2006–Sep 2008

A.Sc. Software Engineering — Malayer University, Hamadan, Iran

GPA: 3.66

Using **ASP.NET**, **C#** and **SQL Server**, implemented a web based system for students to fill out their loan request forms online. It reduced paper consumption (**10** pages per request) and made the request process easier (**85%** of the 20 test users found it easier).

Work Experiences

June 2020–Aug 2020

UMRF Ventures — Memphis, TN, USA

Systems Analyst (Cyber Security Analyst working as a vendor for FedEx)

- Performed vulnerability scanning of computer systems using Splunk Enterprise Security and Splunk UBA
- Developed SPL queries, reports, and dashboards to answer targeted security questions

Technical skills: **Splunk SPL**, **Splunk ES**, Google Cloud Platform (BigQuery, Dataproc, Dataflow, ...), **Splunk UBA**

Mar 2015–Jan 2017

FANAP ICT Co. — Tehran, Iran

Computer Vision Researcher & Senior Software Developer

- Developed a real-time commercial vehicle type classifier in **C++** which is embedded in a large-scale commercial road surveillance system.
- Improved accuracy of a commercial plate recognition system from **94%** to **96%** by designing a Convolutional Neural Network method.
- Reduced the processing time of the vehicle detection module from **20** milliseconds to **7** milliseconds by utilizing Background Subtraction algorithms which had a huge impact on the frame rate of the system.
- Developed vehicle distance and speed detection algorithms.
- Implemented a cross-platform version of the algorithms (Linux, Windows PCs, and Raspberry Pi systems.

Technical skills: **Scrum**, **Git**, **C++**, Visual Studio, OpenCV, Multithreaded programming in C++, **Caffe**

Contact

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Web

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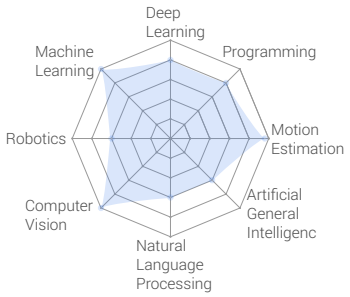
Facebook: alisaaalehi
GitHub: alisaaalehi

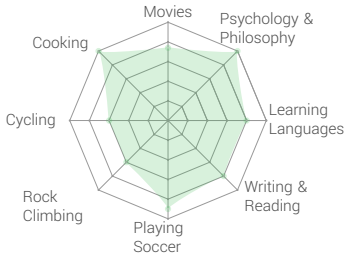
Programming

C/C++	●●●●○
Python	●●●●○
Matlab	●●●●●
R	●●●○○
C#	●●●●○

Professional Interests



Personal Interests



Jul 2013–Mar 2015 **FANAP ICT Co.** Tehran, Iran
Technical Manager & Software Developer

- Managed the operations of a web development team.
- Design, implement and deploy about **10** modules for an e-commerce system.
- Optimized the whole website by updating all of its core modules. This increased the website speed by about **60%**.
- Worked closely with DBAs, system, and network engineers to ensure web system stability.
- Collaborated with other departments of the company to plan and develop high-quality products.
- Managed and developed all the projects based on the Agile methodology.

Technical skills: **PHP**, **MySQL**, **Git**,

Sep 2010–Sep 2011 **Technical and Vocational Training Organization** Hamadan, Iran
Lecturer

- Taught high school students programming languages (C, C++, Pascal)
- Maintained computer lab with over thirty networked stations, including one server.
- Worked closely with more than 200 students to design fun projects.

Projects

Aug 2017–Nov 2018 **Collaborative Filtering Based Recommender System** University of Memphis
Machine learning course project
Implemented a recommender system in **python** to solve the **Netflix** problem. Given just previous ratings of the users in the database to some movies, the code predicts their possible ratings to other movies in the list that they haven't seen so far.
Technical skills: Python, **Sckikit-learn**

Aug 2017–Nov 2018 **Multimodal Variational Autoencoder** University of Memphis
Independent project
Designed a multimodal autoencoder using **Tensorflow** in Python to map images and corresponding audio to a shared representation that makes it possible to complete noisy data and generate one modality using another one.
Technical skills: **Python**, Tensorflow, **Tensorboard**

Dec 2015–Mar 2016 **Intelligent Billboard** FANAP ICT Co.
Work project
Using **Caffee** and **OpenCV** in **C++**, designed an intelligent billboard that uses deep learning-based face recognition methods to recognize the age range and gender of a person who looks at it to present appropriate advertisements. The accuracy of the first version was **81%**.
Technical skills: C++, OpenCV, Caffee

Apr 2011–Jul 2011 **Fuzzy Robot Controller** Soshiant Robotics Team
Robotic team project
Developed a sensor-based obstacle avoidance controller for a mobile robot using Fuzzy Logic in **visual C#** to operate in unknown environments. This controller increased exploration of the robot by **40%**.
Technical skills: visual C#, Virtual Robot Simulation

Activities & Leadership

Jan 2017–May 2018 **Electrical & Computer Project Class** University of Memphis
Head Teaching Assistant

- Assisted **40+** students to implement their junior projects including hand gesture recognition system on Raspberry Pi, broken light alarm and baby temperature monitoring systems using **Arduino** and smart mirror with face detection system on **Raspberry Pi**.
- Assisted students to debug their codes in **Python** and **C**.

Hard Skills

Data Analysis	●●●●●
Cyber Security	●●●○○
Mathematics ML	●●●●○
Data Visualization	●●●●○
Programming	●●●●●
Quanti. Analysis	●●●●●
Machine Learning	●●●●●
Statistics	●●●●○
Debugging	●●●●●

Tools Skills

Deep Learning

Tensorflow	●●●●○
Caffee	●●●●○
Keras	●●○○○
Scikit-learn	●●●●○
Matlab toolbox	●●●●●
Numpy	●●●●●
Pandas	●●●●○
Matplotlib	●●●●○

Big Data

Splunk	●●●○○
GCP	●●○○○

Image Processing

OpenCV	●●●●○
Matlab Toolbox	●●●●●

Operating Systems

Linux (Ubuntu)	●●●●○
Windows	●●●●●

Typesetting

LaTeX	●●●●●
MS Word	●●●●○

Electronics Platform

Raspberry Pi	●●●○○
Arduino	●●●○○

Version Control

Git	●●●●○
SVN	●●●○○

Containerization

Docker	●●●○○

Software Methodology

Agile (Scrum)	●●●●●
Waterfall	●●●○○

Database

MySQL	●●●●○
SQLite	●●●●○

IDE

Jupyter Notebook	●●●●●
PyCharm	●●●●○
Visual Studio	●●●●○

Sep 2012–Feb 2013 **Machine Learning Class** — Sharif University of Technology
Teaching Assistant

- Assisted **30+** graduate students in developing their final projects for the course.
- Held weekly problem-solving sessions for 30+ students.

Sep 2010–Oct 2011 **Soshiant Robotics Team** — Bu-Ali Sina University
Volunteer Developer

- Improved **40%** in exploration of the rescue robot by designing a fuzzy obstacle avoidance controller.
- Reduced exploration time about **60%** by optimizing its decision-making module.

Dec 2006–Sep 2008 **Science Student's Association** — University of Malayer
President

- Organized several scientific and social events for **500+** attendees each time
- Published about 10 magazines and newsletters
- Held several workshops for 50+ students each time

Honors & Awards

Jul 2019 **Fight For Sight's Summer Student Fellowship** — Fight for Sight
Award recipient

- Recipient of summer student fellowship for the project: "Detecting Progression of Glaucoma from Optic Nerve Head Images using a Convolutional Neural Network."

May 2018 **Graduate Herff Fellowship** — University of Memphis
Award recipient

- One of the two recipients of the Herff Fellowship with financial support for conducting doctoral dissertation research work among 30+ graduate students.

Dec 2014 **Outstanding Employee Award** — FANAP ICT Co.
Award recipient

- Selected as distinguished employee for consistently performing high quality work as member and manager of the technical team.

Aug 2011 **National Graduate University Entrance Exam** — Tehran
Honored as Top 0.01%

- Ranked top **0.01%** in the nationwide university entrance exam for graduate degree among **300k+** competitors.
- Received full scholarship for an M.Sc. program in computer engineering.

Sep 2010
Sep2010 **Top Student Award** — University of Malayer & University of Omran and Toseeh
1st Rank

- **1st** Rank, in Cumulative GPA among **100+** B.Sc. software engineering students of the department, 2008 beginners
- **1st** Rank, in Cumulative GPA among **40+** A.Sc. software engineering students of the department, 2006 beginners.

Algorithms

Deep Networks

CNN	●●●●●
ResNet, AlexNet	●●●●○
Inception Net	●●●●○
YOLO Algorithm	●●●●○
Siamese Net	●●●●○
RNN	●●●●○
LSTM & GRU	●●●●●
Word2Vec	●●●●○

Machine Learning

SVM	●●●●●
Clustering	●●●●●

Languages

English (Full professional)
Persian (Native / bilingual)
Azari (Native / bilingual)
Turkish (Intermediate)

Soft Skills

Collaboration	●●●●●
Communication	●●●●●
Active Learning	●●●●●
Problem Solving	●●●●○
Creative Thinking	●●●●●

Professional Reference

My Ph.D. Advisor:
Dr. Madhusudhanan Balasubramanian,
Director and Principal Investigator of the Computational Ocularscience laboratory,
Department of Electrical and Computer Engineering,
The University of Memphis,
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