Ali Salehi

Computer Vision / Machine Learning Researcher & Software Engineer

Summary

I am a creative and highly focused problem solver with more than 8 years of hands-on experience in Artificial Intelligence. I have more than 3 years of industry experience in complete product development lifecycle and successfully launched applications. Eager to participate in challenging AI projects with a specific focus in computer vision and machine learning. In my current role as a graduate research assistant and a graduate Herff Fellowship recipient, I have developed highly efficient and compact deep learning models for motion estimation from image sequences.

Education

Jan 2017–Present
Expected May 2021

Ph.D. Computer Engineering   University of Memphis, Memphis, USA
GPA: 3.98

- Developing deep learning algorithms using **tensorflow** in **python** for dense motion estimation from image sequences.
- Developing algorithms for analyzing medical image sequences (Glaucoma progression detection from retinal images).

⌨ Computer Vision(A+), Machine Learning(A+), Bayesian Inference(A+), Random Signals & Noises(A)

Sep 2011–Jul 2013

M.Sc. Artificial Intelligence   Sharif University of Technology, Tehran, Iran
GPA: 4.0

- Developed a hierarchical feature extraction method using dictionary learning approaches to encode objects and scenes. By using SVM as classifier in **Matlab**, the method achieved $\approx 49\%$ (**3%** improvement over the existing methods) accuracy on the benchmark datasets.

⌨ Digital Image Processing(A+), Digital Video Processing(A+), Neural Networks & Fuzzy Systems(A+), Statistical Pattern Recognition(A), Complex Dynamical Networks (A)

Sep 2008–Sep 2010

B.Sc. Software Engineering   University of Omran and Toseeh, Hamadan, Iran
GPA: 3.96

- Developed a Cellular Learning Automatons in **C++** for edge detection in digital images.

⌨ Data Structures and Algorithms, Advanced Computer Programming, Artificial Intelligence, Discrete Structures, Object Oriented Programming, Software Engineering, Database Design, Information Retrieval, Computer Networks.

Work Experiences

Jan 2018–Present

Computational Ocularscience laboratory   Memphis, TN, USA
Graduate Research Assistant

- Developed compact and efficient dilated convolutional neural networks for multi-resolution dense optical flow estimation.
- Designed a deep learning method to model relevant changes from the confocal microscopy image sequences to detect glaucoma progression.
- Using the powerful 3D modeling software, Blender, implemented a synthetic stereo sequence generation module for training motion estimation algorithms.

👤⚙ Python, **Tensorflow**, Keras, High Performance Computing (Slurm), Anaconda, Docker, Blender

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.

👤⚙ **Splunk SPL**, **Splunk ES**, Google Cloud Platform (BigQuery, Dataproc, Dataflow), **Splunk UBA**

Contact

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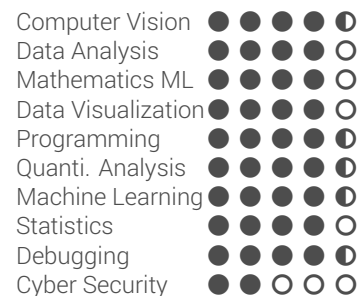📞 (305) 924 7620
✉ AliSaaalehi@gmail.com
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Web

🌐 www.alisaaalehi.com
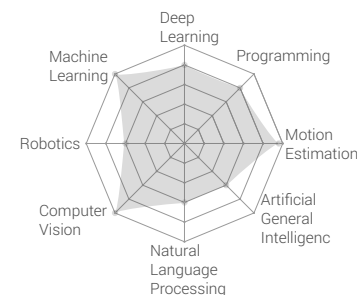in LinkedIn: alisaaalehi
f Facebook: alisaaalehi
○ GitHub: alisaaalehi

Programming

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

Hard Skills

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

Professional Interests

FANAP ICT Co. — Mar 2015–Jan 2017 — Tehran, Iran

Computer Vision Researcher & Senior Software Engineer

- 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.
- Developed vehicle distance and speed detection algorithms.

Scrum, **Git**, **C++**, Visual Studio, Linux, **OpenCV**, Multithreaded programming in C++, **Caffe**

FANAP ICT Co. — Jul 2013–Mar 2015 — Tehran, Iran

Technical Manager & Software Engineer

- 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%**.
- Collaborated with other departments of the company to plan and develop high-quality products.
- Managed and developed all the projects based on Agile (Scrum) methodology.

PHP, **MySQL**, **Git**,

Projects

Collaborative Filtering Based Recommender System — Aug 2017–Nov 2018 — University of Memphis

Machine learning course project

- Implemented a recommender system in **python** to solve the **Netflix** problem.

Python, **Sckikit-learn**

Multimodal Variational Autoencoder — Aug 2017–Nov 2018 — 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.

Python, Tensorflow, **Tensorboard**

Intelligent Billboard — Dec 2015–Mar 2016 — FANAP ICT Co.

Work project

- Using **Caffe** 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%**.

C++, OpenCV, Caffe

Fuzzy Robot Controller — Apr 2011–Jul 2011 — 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.
- Improved exploration of the robot by **40%** and reduced exploration time about **60%**.

visual C#, Virtual Robot Simulation

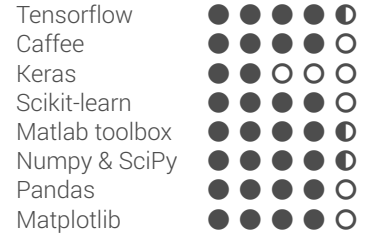**Miscellaneous Projects** — Sep 2013–Dec 2020

Independent or class projects

- Finding stochastic shortest paths (SSP) in uncertain environment using Reinforcement Learning and Evolutionary Algorithms.
- Implementing simple video codec (Video Compression).
- Simulation and analysis of complex dynamical networks.
- News classification.
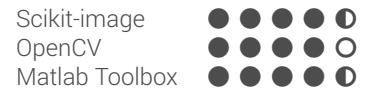- 3D point cloud reconstruction from stereo images.

Skills

Deep Learning

- Tensorflow
- Caffee
- Keras
- Scikit-learn
- Matlab toolbox
- Numpy & SciPy
- Pandas
- Matplotlib

Big Data

- Hadoop
- Splunk
- GCP

Image Processing

- Scikit-image
- 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

- PyCharm
- Jupyter Notebook
- Visual Studio

Graphic Design

- TikZ / PGF
- Adobe Illustrator
- Blender
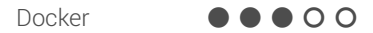
Activities & Leadership

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

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

Volunteer — Tehran
May2016–Jun2016
Imam Ali Popular Students Relief Society

- Teaching

Teaching Assistant — Sharif University of Technology
Sep 2012–Feb 2013
Machine Learning and Neural Network Class

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

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

- 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

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

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

Graduate Herff Fellowship — University of Memphis
May 2018
Award recipient

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

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

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

National Graduate University Entrance Exam — Tehran
Aug 2011
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.

Top Student Award — University of Malayer & University of Omran and Toseeh
Sep 2010
Sep2010
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

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

Classical Machine Learning

Skill	Level
SVM	●●●●◐
Clustering	●●●●◐
Decision Trees	●●●●○

Languages

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

Soft Skills

Skill	Level
Collaboration	●●●●◐
Communication	●●●○○
Active Learning	●●●●◐
Problem Solving	●●●●○
Creative Thinking	●●●○○
Meticulous	●●●●◐

Personal Interests

Professional Reference

Ph.D. Advisor
Dr. Madhusudhanan Balasubramanian,
Director and Principal Investigator of the Computational Ocularscience Lab, Dep. of Electrical and Computer Engineering,
The University of Memphis,
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✉ mblsbrmn@memphis.edu