Mohammad Hassan Mojab

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Research Interests

- Machine Learning, Deep Learning, Reinforcement Learning
- Computer Vision, Image Processing
- Internet of Things, Cloud Computing

Education

- **Master of Science** 2019–Present
  Sharif University of Technology *Tehran, Iran*
  - Computer Science (Artificial Intelligence) **GPA: 16.93/20** via 23 credits
- **Bachelor of Science** 2014–2019
  Amirkabir University of Technology *Tehran, Iran*
  - **Major**: Electrical Engineering (Electronics) **GPA: 17.49/20** via 140 credits
  - **Minor**: Computer Engineering (Software) **GPA: 16.04/20** via 18 credits

Dissertations

Active Object Localization Present

Master Thesis *–Supervisor: Dr. Beigy*

- Localizing objects in large images efficiently by using an **adaptive information acquisition** algorithm.
- Reducing the cost of processing the whole image by adaptively selecting the regions of interest.
- Increasing the run-time efficiency of object detection networks.

Serverless IoT platform Spring 2019

Bachelor Thesis *–Supervisor: Dr. Taheri*

- Designing and implementing a **serverless** IoT platform using **OpenWhisk** & **Kubernetes**.
- Deploying an **MQTT** message broker and creating a simulation of IoT devices to send data to it.
- Implementing **RESTful** APIs to store and retrieve time series data of IoT devices.
- Developing a **mobile application** client for time series data visualization.

Publications

- Heydar Soudani, **Mohammad Hassan Mojab**, and Hamid Beigy. **Persian Natural Language Inference: A Meta-learning Approach.** In Association for Computational Linguistics, **2022** (Submitted).
- Ali Samadzadeh, **Mohammad Hassan Mojab**, Heydar Soudani, Seyed Hesamoddin Mireshghollah, Ahmad Nickabadi, and Morteza Haghir Chehreghani. **Amirkabir Campus Dataset: Real-world Challenges and Scenarios of Visual Inertial Odometry (VIO) for Visually Impaired People.** In IEEE/CVF Conference on Computer Vision and Pattern Recognition, **2022** (Submitted).

Honors

- **Top 10%**, based on GPA among all artificial intelligence students. 2021
  CE Department, Sharif University of Technology, Tehran, Iran
- **Ranked 11th**, at the National university entrance exam to graduate school 2019
  Among more than 10,000 students in Artificial Intelligence & Robotics major, National university entrance exam, Iran
- **Top 10%**, based on GPA among all EE students. 2018
  EE Department, Amirkabir University of Technology, Tehran, Iran
- **Permitted** to study Software Engineering as a minor 2016
  Permission is only given to talented students, Exceptional Talents Office, Amirkabir University Technology, Tehran, Iran
- **Top 0.3%**, at the National university entrance exam. 2014
  Among more than 200,000 students in mathematical and physics major, National university entrance exam, Iran

Research Experiences

- **Research Assistant** 2019–Present
  Sharif Intelligent System Laboratory (SISL) *CE Department*
  Supervisor: Dr. Hamid Beigy
  - Collaboration on adaptive information acquisition and computer vision projects.
  - Providing tech support and guidance.
- **Research Assistant** 2017–2019
  Digital Smart Systems (High Performance Computing) Laboratory *EE Department*
  Supervisor: Prof. Seyed Ahmad Motamedi
  - Research and development of **IoT solutions** for smart home, power analyzer, and fleet management systems.
  - Designing software architectures for **cloud** and **edge** layers.
- **Research Assistant** 2016–2017
  Control of Multi Vehicle Systems Laboratory (CMVL) *EE Department*
  Supervisor: Dr. Farzaneh Abdollahi
  - Collaboration in **Semi-Autonomous UGV** control project.
  - Implementing UGV navigation using **ArUco** machine vision library.
  - Connecting UGV to the server using **NRF** & **UDP** protocols.
  - Developing a graphical user interface for UGV controller.
  - Collaboration in **Quadcopter** control project.
  - Controlling Quadcopter using **Erle-Brain** and APM planner software.

Internship

Monitoring and tracking objects for rehabilitation and security uses Summer 2017
Supervisor: Dr. Saeed Sharifian

- Developing and designing two cross-platform mobile applications using **React Native** and **Redux** frameworks.
- Developing a back-end for mobile applications using **PHP** and **MySQL**.

Top Courses

- Natural Language Processing 19.8
- Machine Learning Theory 19.1
- Deep Learning 17.5
- Image Processing 17.5
- Internet Engineering 20
- Computer Programming 20
- Advanced Programming 19.64
- Computer Architecture 19.6

Academic Projects

- **Persian NLI** Summer 2021
  Natural Language Processing Course – Supervisor: Dr. Mohammad Hadi Bokaei
  - Using **cross-lingual** methods to improve the **Natural Language Inference** (NLI) task in Persian.
  - Implementing state-of-the-art **meta-learning** algorithms to make use of cross-lingual data.
- **Video Colorization** Winter 2020
  Deep Learning Course – Supervisor: Dr. Hamid Beigy
  - Video Colorization using **Generative Adversarial Networks (GAN)**.
  - Improving the output performance by implementing new loss functions.
- **Speaker Recognition** Spring 2018
  Computational Intelligence Course – Supervisor: Dr. Farzaneh Abdollahi
  - Designing a Speaker Recognition System using **Multilayer Perceptron**.
  - Implement a GUI to record audio and display the results.
- **3D Environment Mapper** Spring 2016
  Advanced Programming Course – Supervisor: Dr. Amir Jahanshahi
  - Designing a 3D environment mapper using IR-range-finder sensors.
  - Connecting the hardware to a computer using serial port.
  - Designing and developing a GUI to display a **3D real-time plot** of the scanned environment.

- **Online Food Ordering Website** Spring 2017
  Internet Engineering Course – Supervisor: Dr. Bahador Bakhshi
  - Developing the front-end by using **HTML**, **CSS**, and **JavaScript**.
  - Designing and developing the back-end and database using **PHP** and **MySQL**.

Work Experiences

- **Software Engineer & Lead Front-End Developer** Oct 2017–Present
  Andishe Fartak Amirkabir (Atrovan) *Tehran, Iran*
  Designing and developing mobile and web applications for:
  - Smart metering systems (*AtroMeter*)
  - Fleet management system (*Navgoon*)
  - Building management system (*AtCore*)
  - Electricity power analyzer (*EcoSense*)
  - Home automation (*Smart Home*)
- **Software Engineer & Mobile Application Developer** Sep 2018–Jan 2019
  Tosee Pardazan Andishe Gostar (Shams) *Tehran, Iran*
  - Developing Android & iOS applications for two-sided metal market platform.

Computer Skills

Programming	Data	Web & App	Tools
Python	PyTorch	React	Git
JavaScript	TensorFlow	React Native	LaTeX
Java	Pandas	Android	MATLAB
C++	NumPy	HTML5	Docker
	OpenCV	CSS3	Kubernetes

Language Proficiency

- English **Advanced** (reading, writing, listening); **Intermediate** (speaking)
- Persian **Native**