

Mehdi Ghasemzadeh

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[Github.com/mehdighasemzadeh](https://github.com/mehdighasemzadeh)



[YouTube.com/channel/mehdighasemzadeh](https://www.youtube.com/channel/mehdighasemzadeh)

Education

M.Sc.: Electrical engineering, Digital electronics systems at Sharif University of Technology 9/2020 – 2/2023

- Tehran, Iran
- **Supervised** by Prof. [Saeed Bagheri Shouraki](#)
- **GPA:** 3.86/4

B.Sc.: Electrical engineering/electronic systems at Shahid Rajaei Teacher Training University 9/2015- 2/2020

- Tehran, Iran
- **Supervised** by Prof. [Mohammad Shams Esfand Abadi](#)
- **GPA:** 3/4

Publications

Conference publications

- **M. Ghasemzadeh** and S. B. Shouraki, “Semantic Segmentation using Events and Combination of Events and Frames”, [International Conference on Artificial Intelligence and Smart Vehicle](#), 2023, ([the paper link](#))

Books

- [Practical Guide to Using Advanced Driver Assistance Systems](#) (ADAS), M. Yazdani, A. Razzaghi, S. Daneshi, A. Afshari, A. Azadnia, **M. Ghasemzadeh**, S. Yazdani, 2025, Publisher: Heritage Branch, Library & Archives Canada.
- Autonomous Driving and Intelligent Driving Systems (using Artificial intelligence and Deep Learning), **M. Ghasemzadeh**, S. Hosseini, M. Kalani, and A. Afshari, 2024, Simorgh Aseman Azargan Publishing Institute.

Journal publications

- A. Afshari, A. Azadnia, **M. Ghasemzadeh**, and M. Yazdani, **Driver Safer: [A look at How Men and Women use Advanced Driver Assistance System](#)**, 2024, Russian Open Medical Journal.

Awards and Honors

- Received Full Scholarship from the University of Sharif.
- Ranked 20th in the national university Entrance Exam for M.Sc. in Electrical Engineering in 2020, among 15,000 participants.
- Received Full Scholarship from the University of Rajaei.
- Ranked within the top 2.5% among approximately 160,000 participants in the Iranian University Entrance Exam in Mathematics/Physics branch, 2015.

Research Interests

- Computer Vision, Deep Learning, Machine Learning, Autonomous Vehicles (Self-Driving Cars), Embedded Systems, Parallel Programming, Fuzzy Systems

Teaching Experiences

- **Teaching assistant** at [Deep Learning Center in Iran](#) in Python courses Jun 2023 – Feb 2024
 - **Responsibilities:** Designed and graded the assignments, and projects.
- **Teaching assistant** at Sharif University of Technology | Neural Networks courses Jan 2022 - Aug 2022
 - Prof. [Saeed Bagheri Shouraki](#)
 - **Responsibilities:** Designed and graded the assignments, and projects.

Research Experiences

- **Monocular Depth Estimation | Sharif University of Technology** Jun 2023 – Feb 2024
 - **Supervised** by Prof. [Saeed Bagheri Shouraki](#)
 - In this research, we are going to develop a Monocular Depth Estimation using a combination of [Event Camera](#), and standard camera, and we are trying to use a combination of CNNs and RNNs such as Conv-LSTM or Conv-GRU for this task.
- **M.Sc. Thesis | Sharif University of Technology** Feb 2021 – Feb 2023
 - **Supervised** by Prof. [Saeed Bagheri Shouraki](#)
 - Developing a vision system for self-driving cars using an [Event Camera](#) and a standard camera.
 - we developed two Semantic Segmentation models for self-driving cars.
 - The paper of this research is available [here](#).
 - More information is available on my [webpage](#)
- **B.Sc. Final Project | Shahid Rajaee Teacher Training University** 2019 – 2020
 - **Supervised** by Prof. [Mohammad Shams Esfand Abadi](#)
 - Designing a DC-DC Buck-Boost Converter at power of 200w.
 - We designed a Switching DC-DC Buck-Boost Converter, and an AVR microcontroller was used as controller of the converter.

Work Experiences

- **Embedded Systems Engineer (Internship) | Nira System, Tehran, Iran** Jul 2019 to Feb 2020
 - Developed embedded systems and microcontroller programming.
 - Microcontroller programming for ARMs such as STM32 CortexM3 and AVR, and using the microcontroller's peripherals such as I2C, SPI, and UART.

Selected Projects

Computer vision

- Semantic Segmentation using an [event camera](#), ([GitHub page and videos](#))
- Combining images and events data for Semantic Segmentation tasks, ([GitHub page and videos](#))
- Crowd Counting (counting the number of people in images or videos) using detection-based methods such as YOLOV5 ([GitHub page and videos](#))
- Crowd Counting (counting the number of people in images or videos) using density-based methods ([GitHub page and videos](#))

Machine Learning

- Blood Pressure Estimation from PPG Signal

Autonomous Vehicles

- Producing a dataset for autonomous driving using Carla simulator

Parallel Programming

- Implementing parallel matrix multiplication, parallel scan algorithm, and parallel Fast Fourier Transform (FFT) using CUDA, ([GitHub page](#))
- Parallelizing merge sort algorithm using Pthread library, ([GitHub page](#))

Embedded Systems

- Designing a Linux-based Smart Home contains some cameras for recording and face detection, microphones, light and temperature controllers, and an HTTP server for showing home information. This system could connect to a database for saving and reloading data.

Fuzzy Systems

- Implementing a Takagi-Sugeno model and a fuzzy-based active learning method for the estimation of a nonlinear function using Python, ([GitHub page](#))

Selected Courses

Sharif University of Technology

- Computer Vision, Dr. H. Mohammadzade
- Neural Networks, Dr. S. B. Shouraki
- Statical Learning, Dr. H. Mohammadzade
- Embedded Systems, Dr. I. Gholampour
- Parallel Programming and Architectures, Dr. M. Hashemi
- Fuzzy Systems, Dr. S. B. Shouraki

Shahid Rajaee Teacher Training University

- Image Processing, Dr. M. S. Esfand Abadi
- Computer Architecture, Dr. N. Bagheri

Other

- Advanced Python Programming, Maktabkhooneh
- Linear Algebra, Maktabkhooneh
- Probability and Statistics, Maktabkhooneh
- Microcontroller Programming | ARM-Cortex-M3, Tehran Institute of Technology
- Advanced AVR's Microcontroller Programming, Tehran Institute of Technology
- Altium Designer, Tehran Institute of Technology

Skills

- **Programming:** C/C++, Python, Matlab, and Shell
- **Deep Learning:** PyTorch, Tensorflow, Keras, and SciKit Learn
- **Common Libraries:** OpenCV (C++, Python), Numpy, Pandas, and ...
- **Parallel Programming:** CUDA, and Pthread library
- **Driving Simulation:** Carla, Airsim
- **Embedded Systems:** STs and AVR Microcontrollers programming, Boost/BEAST library and MQTT library
- **Hardware:** Nvidia Jetson, Raspberry Pi, ARM, AVR, Arduino, FPGA
- **Electronics:** Altium Designer, OrCAD PSpice, Multisim, Proteus
- **Operating Systems:** Linux, Windows
- **Other:** Make, Cmake, Git, STM32Cube IDE, Xilinx ISE Design Suite

Languages

- Persian (native)
- English (IELTS 6.5)

References

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