

ALI KARAMI

School of Electrical and Computer Engineering University of Tehran, Tehran, Iran

✉ [Gmail](#) 🌐 [Website](#) [in linkedin](#) [github](#)

Education

University of Tehran

Sep. 2017 – Sep. 2021

Bachelor of Science in Electrical Engineering (Control Systems)

Tehran, Iran

- Control Systems Specific GPA (last three semesters): 19.23/20 (4/4)
- Overall GPA: 17.76/20 (3.81/4)

Nokhbeghan High School

Sep. 2013 – Aug. 2017

Diploma in Mathematics and Physics

Tehran, Iran

- GPA: 19.16/20 (4/4)

Areas of Interest

- Artificial Intelligence and Machine Learning
- Optimization and Optimal Control
- Computer Vision and Pattern Recognition
- Federated Learning
- Deep Learning
- Reinforcement Learning
- Biomedical Signal Processing

Honors and Awards

- Ranked 1st among Electrical Engineering B.Sc. students in the seventh and eighth semesters, University of Tehran.
- Eligible for Exemption from M.Sc Entrance Exam in the University of Tehran as **an exceptionally talented** student.
- Ranked among top 10% out of 125 undergraduate students, School of Electrical and Computer Engineering, University of Tehran.
- Ranked 346st among more than 150,000 attendees of Iran universities' entrance exam, "Konkur". (Ranked among the first 0.3% of attendees)

Publications ([Details](#))

IEEE/CAA Journal of Automatica Sinica

Sep. 2021

- **A. Karami**, M. Montazeri, H. Kebriaei, "Traffic Light Management System by Federated Deep Reinforcement Learning" (*Submitted*)
- Federated Learning • Deep Learning • Reinforcement Learning • Traffic Management

Digital Signal Processing Elsevier Journal

June. 2021

- Akhavan, S., Baghestani, F., Kazemi, P., **Karami, A.**, Soltanian-zadeh, H. 2021, "Dictionary Learning for Sparse Representation of Signals With Hidden Markov Model Dependency" (*Submitted after revision*)
- Sparse Signal Processing • Dictionary Learning • Machine Learning

Research Experiences and Internships

Intelligent System Lab, University of Tehran

Summer 2021 – Present

- FedVision – Currently working with [Dr. Hamed Kebriaei](#) on an Online Visual Object Detection Project powered by Federated Learning.

Qeshm Voltage - Siemens dealership in Iran

Summer 2020

- Building IOT products using Arduino/ARM/AVR microcontrollers, sensors, displays, keypads, relays, PCBs, etc.

The Course Management System | University of Tehran IEEE Student Branch

Summer 2019

- Designing [The Course Management System](#) for the IEEE student branch of the University of Tehran by PHP, JavaScript/AJAX, and HTML/CSS.

Relevant Courses (Graduate courses are indicated by †)

- Machine Learning[†] (20/20)
- Blind Source Separation[†] (18.5/20)
- Modern Control Systems (20/20)
- Digital Signal Processing (19.25/20)
- Operational Research (20/20)
- Linear Algebra (18.4/20)
- Digital Control Systems (19.7/20)

Technical Skills

Languages: Python, Matlab/Simulink, C/C++, HTML/CSS, JavaScript, SQL, PHP.

Python Notable AI Packages: Tensorflow, Keras, Sklearn.

Hardware/System Design: VS Code, Simulink, Microcontrollers (AVR/ARM/Arduino), Altium Designer.

Technologies/Frameworks: Linux, GitHub, WordPress, L^AT_EX.

Notable Academic Projects

Blind Source Separation

Spring 2021

- Implementing different ICA algorithms (such as FastICA).
- Implementing single/multi-channel blind source deconvolution.
- Implementing dictionary learning algorithms (MOD and K-SVD) for sparse representation of signals.
- Implementing an LDA classifier for an EEG dataset based on the CSP approach.
- Implementing the CCA approach in the detection of the Stimulation frequency of SSVEP datas.

Feature Conditioning Methods and Generative/Discriminative Classifiers | *Machine Learning*

Fall 2020

- Implementing feature conditioning methods to reduce feature dimensions and selecting the best Classifier based on different criteria such as accuracy, precision, recall, etc.

Data Tidying | *Machine Learning*

Fall 2020

- Web scraping with python and extracting data from Html web pages [Varzesh3](#) using BeautifulSoup.

Electric Power Dispatching | *Operational Research*

Fall 2020

- Deciding the effective and healthy operation of the whole power grid by electric power dispatching system.

Inverted Pendulum | *Modern Control Systems*

Fall 2020

- First, I modeled the inverted pendulum system and linearized it around its equilibrium point. Then I controlled the system in position and angle by PID/pole-placement controllers in Matlab and Simulink.

My Shazam - Music Search Engine | *Signals and Systems*

Spring 2019

- Developing a Music Search Engine in Matlab using Signal Processing Algorithms, Fourier Transform, Signal Spectrum, Digital Filters, etc.

4-DOF Delta Parallel Robot | *Fundamentals of Mechatronic Engineering*

Spring 2020

- Carry out the design, kinematic problem, and control of a 4-DOF Delta parallel manipulator.

Obstacle Avoidance for Redundant Manipulator | *Linear Algebra*

Spring 2020

- Using redundant robots instead of robots with full rank configuration space in the workspace with obstacles and solving inverse kinematic equations of the redundant robots.

Object Tracker and Facial Components Identifier | *Fundamentals of Mechatronic Engineering*

Spring 2020

Language

- English: Fluent (TOEFL will be taken on 13th of October)
- Farsi: Native

Teaching Assistantship

Modern Control Systems <i>Chief TA</i> <ul style="list-style-type: none">Instructor: Dr. Hamed Kebriaei	Fall 2021
Linear Control Systems <i>Project Designer</i> <ul style="list-style-type: none">Instructor: Dr. Fariba Bahrami BoodeLalou	Fall 2020
Linear Control Systems Lab <i>Grader</i> <ul style="list-style-type: none">Instructor: Dr. Fariba Bahrami BoodeLalou	Spring 2020
Signals and Systems <i>Project Designer</i> <ul style="list-style-type: none">Instructor: Dr. Saeed Akhavan Behabadi	Spring 2021
Fundamentals of Mechatronic Engineering <i>Project Designer</i> <ul style="list-style-type: none">Instructor: Dr. Mehdi Tale Masouleh	Spring 2021
Computer Architecture <i>Grader</i> <ul style="list-style-type: none">Instructor: Dr. Saeed Safari	Spring 2021, Fall 2021
Electronics 2 <i>Grader</i> <ul style="list-style-type: none">Instructor: Dr. Ali Afzali Kousha	Fall 2020, Spring 2021
Electrical Machines 1 <i>Grader</i> <ul style="list-style-type: none">Instructor: Dr. Moein Abedini	Spring 2021, Fall 2021