

# Amirhossein Rajabpour

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**Email:** [rajabpour@aut.ac.ir](mailto:rajabpour@aut.ac.ir)

**GitHub:** [Amirhossein-Rajabpour](#) **LinkedIn:** [LinkedIn](#)

**Gmail:** [rajabpouramirhosein@gmail.com](mailto:rajabpouramirhosein@gmail.com)

**Homepage:** [amirhossein-rajabpour.github.io](http://amirhossein-rajabpour.github.io)

**Research interests** Artificial Intelligence, Deep Learning, Time Series Analysis, Vision, Cloud Computing

**Education** **Amirkabir University Of Technology (Tehran Polytechnic)** Tehran, Iran  
**B.Sc. Computer Engineering** 2018 – Present

- GPA: 17.11 (3.65/4)
- GPA (last two years): 18.62 (3.95/4)

**Allameh Tabatabaee High School** Tehran, Iran  
HighSchool, PreUniversity in Math. and Physics 2014 – 2018

- PreUniversity GPA: 19.35 (4/4)
- High School GPA: 19.41 (4/4)

**Technical Skills**

**Programming Languages:** Python, C, Java, Shell Scripting, Octave  
**OS:** Windows, Linux (Ubuntu)  
**Artificial Intelligence:** Tensorflow, Pytorch, Keras, Scikit learn, Fastai  
**Database Systems:** MySQL, PostgreSQL  
**Web Development:** Django, Flask, HTML, CSS  
**Miscellaneous:** OpenCV, Docker, Jira, Git, LaTeX, Numpy, Pandas, Plotly, Selenium, Xampp, Wireshark, GNS3, Arduino, Verilog, VHDL

**Research and work Experiences**

**Bachelors Thesis | Amirkabir University | Sep 2022 – Present**  
Image styling using GAN. Supervised by [Mohammad Rahmati](#).

**Research Group | Amirkabir University | Feb 2022 – Present**  
Working with a research team supervised by [Hamed Farbeh](#) on portfolio asset allocation using reinforcement learning and graph neural networks. I was responsible for implementing a graph convolutional network from a time series dataset.

**Machine Learning Engineer | R&D Department of Crouse PJS Co. | Oct 2021 – Jan 2022**  
Working on an Artificial Intelligence Vision problem. My job was to design a light model to do the following to recognize whether LEDs on the monitor work fine:

- Localizing LEDs on the monitor
- Clustering LEDs light pixels and using the more valuable clusters for extracting light information with fuzzy C-means clustering
- Extracting luminance and wavelength from those selected clusters

- Use different regression models for different LED colors to detect malfunctioning LEDs

### DevOps Engineer Intern | Graph Co. | Nov 2020 – Apr 2021

Working with Docker, Minikube, and some backend technologies

### Selected Projects<sup>1</sup>

**Search Engine:** Implementing a search engine using different search models and algorithms like binary search, tf-idf and word embedding. Also implementing K-means clustering and KNN algorithms to speed up the search

**Genetic Algorithm:** Implementing genetic algorithm in order to solve Super Mario game

**Constraint Satisfaction Problems:** Implementing CSP Backtracking, Forward Checking and MAC Algorithms in order to solve a binary puzzle

**Handwritten Digit Recognition from scratch:** Implementing a neural network from scratch with/without vectorization

**Fuzzy C-Means Clustering:** Implementing the fuzzy version of the K-Means algorithm is implemented. Each data point is not forced to belong only to a specific cluster but can belong to varying degrees

**Searching Algorithms: IDS, BBFS, A\*:** Implementing searching algorithms like IDS, BBFS and A\* from scratch in order to find optimal path. In this program a robot should push a piece of butter to a plate and the robot should do this optimally with no extra moves

**Internet of Things:** Implementing multiple scenarios using NodeMCU board and various sensors and actuators, programming the board using Arduino language. Moreover, implementing web-based solutions for some scenarios

**Jpotify:** Music player written in Java that can load/save songs, create/edit/delete playlists and connect to another client and share songs

### Teaching Experiences

#### Teaching Assistant | Principles of Artificial Intelligence | Fall 2022

- Under the supervision of [Mahdi Javanmardi](#)
- Designing (and grading) projects about Constrained Satisfaction Problems, adversarial search, Bayes Nets, and Reinforcement Learning

#### Teaching Assistant | Cloud Computing | Fall 2022

- Under the supervision of [S.Ahmad Javadi](#)
- Designing (and grading) practical assignments about using APIs, working with cloud services, and working with Docker and Kubernetes

#### Teaching Assistant | Internet of Things | Fall 2022

- Under the supervision of [Siavash Khorsandi](#)
- Designing (and grading) assignments about various scenarios for working with different sensors and actuators and programming with Arduino

#### Teaching Assistant | Algorithm Design | Spring 2022 & Fall 2021 & Spring 2021

- Under the supervision of [Alireza Bagheri](#), [Sajad Shirali-Shahreza](#)

<sup>1</sup> All the projects and their descriptions can be found on my [GitHub](#)

	<ul style="list-style-type: none"><li>• Defining and grading assignments</li><li>• Taking quizzes</li></ul>			
Honors and Awards	Achieved top 1% place among more than 140,000 applicants of the Nationwide University Entrance Exam for B.Sc. in Math. and Physics Iran, 2018			
Selected Relevant Education and Coursework	<table><tr><td><ul style="list-style-type: none"><li>• <b>Data Mining:</b> 19.10/20</li><li>• <b>Microprocessor and Assembly lang.:</b> 20/20</li><li>• <b>Information Retrieval:</b> 19.28/20</li><li>• <b>Software Engineering2:</b> 20/20</li><li>• <b>Principals of Artificial Intelligence:</b> 18.6/20</li><li>• <b>Web Programming:</b> 20/20</li></ul></td><td><ul style="list-style-type: none"><li>• <b>Algorithm Design:</b> 20/20</li><li>• <b>Operating Systems:</b> 18.16/20</li><li>• <b>Cloud Computing:</b> 20/20</li><li>• <b>Startup Development:</b> 20/20</li><li>• <b>Computational Intelligence:</b> 18.5/20</li><li>• <b>Microeconomics:</b> 20/20</li><li>• <b>Internet of Things:</b> 19.57/20</li></ul></td></tr></table>		<ul style="list-style-type: none"><li>• <b>Data Mining:</b> 19.10/20</li><li>• <b>Microprocessor and Assembly lang.:</b> 20/20</li><li>• <b>Information Retrieval:</b> 19.28/20</li><li>• <b>Software Engineering2:</b> 20/20</li><li>• <b>Principals of Artificial Intelligence:</b> 18.6/20</li><li>• <b>Web Programming:</b> 20/20</li></ul>	<ul style="list-style-type: none"><li>• <b>Algorithm Design:</b> 20/20</li><li>• <b>Operating Systems:</b> 18.16/20</li><li>• <b>Cloud Computing:</b> 20/20</li><li>• <b>Startup Development:</b> 20/20</li><li>• <b>Computational Intelligence:</b> 18.5/20</li><li>• <b>Microeconomics:</b> 20/20</li><li>• <b>Internet of Things:</b> 19.57/20</li></ul>
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Language Skills	<p><b>Persian:</b> Native</p> <p><b>English:</b> Professional Working Proficiency. Test scheduled for Oct. 22.</p> <p><b>German:</b> Professional Working Proficiency (B2)</p>			
References	<p><b>Mohammad Rahmati , Professor</b> Computer Eng. Dept, Amirkabir University of Technology Email: rahmati@aut.ac.ir</p> <p><b>Alireza Bagheri , Associate Professor</b> Computer Eng. Dept, Amirkabir University of Technology Email: ar_bagheri@aut.ac.ir</p> <p><b>Hamed Farbeh , Associate Professor</b> Computer Eng. Dept, Amirkabir University of Technology Email: farbeh@aut.ac.ir</p> <p><b>Mahdi Javanmardi , Associate Professor</b> Computer Eng. Dept, Amirkabir University of Technology Email: mjavaan@aut.ac.ir</p> <p><b>S.Ahmad Javadi , Associate Professor</b> Computer Eng. Dept, Amirkabir University of Technology Email: sajavadi@aut.ac.ir</p> <p><b>Mohammad Mahdi Lotfi Heravi , Associate Professor</b> Management, Science and Technology Dept, Amirkabir University of Tech. Email: mahdi.lotfi@aut.ac.ir</p> <p><b>Siavash Khorsandi , Associate Professor</b> Computer Eng. Dept, Amirkabir University of Technology Email: khorsandi@aut.ac.ir</p> <p><i>*To review my projects and certificates, check my <a href="#">Homepage</a>.</i></p>			