

# Matin Aghaei

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Location: Karaj, Iran — Phone: (+98)-9359520112 — Email: m.jaffaraghaei@gmail.com  
Website: [matinaghaei.github.io](https://matinaghaei.github.io) — GitHub: [github.com/matinaghaei](https://github.com/matinaghaei)

## RESEARCH INTERESTS

- Reinforcement Learning
- Autonomous Systems
- Control Theory & Robotics
- Game Theory & Multi-Agent Systems
- Quantitative Trading

## EDUCATION

*Bachelor of Science, Computer Science* Sep. 2017 – Jun. 2022 (Expected)  
Amirkabir University of Technology [website], Tehran  
GPA: 3.86 /4

GPA (Major-related courses): 4 /4

- Robotics: 20 /20
- Information Retrieval: 20 /20
- Artificial Intelligence: 20 /20
- Algorithm Design: 19.5 /20
- Data Structures: 19.75 /20
- Advanced Programming: 20 /20
- Fundamentals of Programming: 20 /20

Thesis: *Portfolio Management Using Actor-Critic Reinforcement Learning* [code]

Advisor: Prof. Ebadzadeh [homepage]

*Diploma, Mathematics and Physics* Sep. 2014 – Jun. 2017  
National Organization for Development of Exceptional Talents [wikipedia], Karaj

## TEACHING EXPERIENCE

*Head Teaching Assistant, Artificial Intelligence* Sep. 2021 – Present  
Assistant Prof. Javanmardi [linkedin], Amirkabir University of Technology, Tehran

- Coordinated the teaching assistantship team
- Created tutorial videos on RL and Bayes nets
- Designed assignments & projects
- Helped the students with their problems

*Head Teaching Assistant, Computational Intelligence* Sep. 2020 – Present  
Prof. Ebadzadeh [homepage], Amirkabir University of Technology, Tehran

- Coordinated the teaching assistantship team
- Designed assignments & quizzes
- Helped the students with their problems

*Teaching Assistant, Operating Systems* Sep. 2020 – present  
Associate Prof. Zarandi [homepage], Amirkabir University of Technology, Tehran

- Designed assignments
- Created problem-solving content for the students
- Helped the students with their problems

*Head Teaching Assistant, Data Mining* Feb. 2021 – Jun. 2021  
Assistant Prof. Nazerfard [homepage], Amirkabir University of Technology, Tehran

- Coordinated the teaching assistantship team
- Designed assignments & projects
- Helped the students with their problems

## WORK EXPERIENCE

*Back End & Front End Developer* Oct. 2019 – Sep. 2020  
UTOPIA - Software company for organizing agriculture [website], Tehran

- Designed GraphQL schemes in the back-end
- Connected the back end and front end using Apollo GraphQL

*Educational Manager* Mar. 2019 – Sep. 2020  
Students' Scientific Chapter of Computer Engineering [linkedin], Amirkabir University of Technology, Tehran

- Elected by students of the department
- Organized extracurricular courses and presentations
- Cooperated in holding programming contests

## SELECTED COURSE PROJECTS

### *Robotics*

- Implementation of a robot controller which follows oval and spiral paths [code]
- Implementation of a robot controller which constructs an obstacle map using VFH algorithm and avoids the obstacles in a Gazebo environment using a polar histogram [code]

### *Data Mining*

- Implementation of an image compressor (Using K-Means algorithm to reduce the number of colors in an image by clustering them) [code]

### *Information Retrieval*

- Implementation of a search engine for Persian language using inverted index and TF-IDF [code]

### *Principles of Computational Intelligence*

- Implementation of a 2-layer Neural Network [code]
- Implementation of Genetic Algorithm for solving Knapsack [code] and Traveling Salesman [code] problems
- Implementation of Fuzzy C-means Clustering [code]

### *Principles and Applications of Artificial Intelligence*

- Implementation of Natural Language Processing using n-grams [code]
- Implementation of Genetic Algorithm & Simulated Annealing Algorithm for solving Constraint Satisfaction Problem [code]
- Implementation of A\*, Bi-directional and IDS algorithms for solving Rubik's Cube [code]
- Implementation of AC-3 algorithm for solving Constraint Satisfaction Problem [code]

## HONORS & AWARDS

- Ranked top 2% among more than 150,000 Iranian students in the National University Entrance exam in Engineering and Applied Mathematics (Regional rank of 815 and nationwide rank of 2991), 2017
- Advanced to the 3<sup>rd</sup> stage of the Iranian National Olympiad in Informatics (Only 80 students reached this stage), 2015
- Qualified as a member of the National Organization for Development of Exceptional Talents (NODET) [wikipedia], 2010

## SKILLS

- *Programming Languages:* Python, Java, C, C++, MATLAB, VHDL, SQL, JavaScript
- *Frameworks & Libraries:* Numpy, Scipy, TensorFlow, PyTorch, Pandas, Matplotlib
- *Development tools:* Git, VS Code, Visual Studio, PyCharm, IntelliJ, Vivado

## LANGUAGES

- *Persian:* Native
- *English:* Advanced  
TOEFL iBT (September 2021): 102/ 120  
Reading: 29, Listening: 27, Speaking: 21, Writing: 25

## REFERENCES

- Mohammad Mehdi Ebadzadeh  
Professor of Computer Engineering Dept.  
Amirkabir University of Technology (Tehran Polytechnic)  
Email: ebadzadeh@aut.ac.ir
- Hamid Reza Zarandi  
Associate Professor and Head of Computer Engineering Dept.  
Amirkabir University of Technology (Tehran Polytechnic)  
Email: h\_zarandi@aut.ac.ir
- Mahdi Javanmardi  
Assistant Professor of Computer Engineering Dept.  
Amirkabir University of Technology (Tehran Polytechnic)  
Email: mjavan@aut.ac.ir
- Ehsan Nazerfard  
Assistant Professor of Computer Engineering Dept.  
Amirkabir University of Technology (Tehran Polytechnic)  
Email: nazerfard@aut.ac.ir
- Morteza Saheb Zamani  
Professor of Computer Engineering Dept.  
Amirkabir University of Technology (Tehran Polytechnic)  
Email: szamani@aut.ac.ir
- Mehdi Rasti  
Associate Professor of Computer Engineering Dept.  
Amirkabir University of Technology (Tehran Polytechnic)  
Email: rasti@aut.ac.ir
- Alireza Bagheri  
Associate Professor of Computer Engineering Dept.  
Amirkabir University of Technology (Tehran Polytechnic)  
Email: ar.bagheri@aut.ac.ir