

# Amin Fadaeinejad

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🔗 <https://github.com/aminfadaei116>

<https://aminfadaei116.github.io/WebPage//>

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## EDUCATION

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University of Tehran, Tehran, Iran

Sep. 2016 - Jun. 2021(expected)

○ **B.Sc in Electrical Engineering (Control)**

**GPA: 18.59/20 (3.91/4)**

Rank 3<sup>rd</sup> out of approximate 110 undergraduate students

○ **Minor in Computer Engineering**

Sep. 2018 - Jan. 2021

Passed a number of courses in Computer Engineering

**GPA: 17/20 (3.8/4)**

**Allameh Helli High school**, Kerman, Iran

Sep. 2012 - Jun. 2016

*Diploma in Mathematics and Physics' Discipline*

Affiliated with the National Organization for the Development of Exceptional Talents (NODET)

## RESEARCH INTERESTS

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- Machine Learning
- Machine Vision
- Deep Learning

## HONORS AND AWARDS

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- Ranked 3<sup>rd</sup> out of approximate 110 undergraduate students (Ranked 2<sup>nd</sup> in Control Engineering), school of Electrical and Computer Engineering(till now), University of Tehran
- Member of Iran's National Elites Foundation Sep. 2016 - Present
- Ranked 394<sup>th</sup> among more than 156,000 participants in Nationwide Universities Entrance Exam (B.Sc.). Sep. 2016
- Ranked 23<sup>rd</sup> in Sharif National Student Competition Mar. 2015
- Ranked 3<sup>rd</sup> in the country at the second stage of Paya Scientific League in physics Jun. 2015
- Passing the first stage of Physics Olympiad for two years Jan. 2014 & Jan. 2015

## RESEARCH EXPERIENCE

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**B.Sc. Thesis**

**Summer & Fall 2020 & Winter 2021**

○ B.Sc Final Project (Currently working on)

- Automatic car property detection system (Color and Model).
- Implementing a new method or a proper network architect to improve the color classification accuracy.

Instructor: [Dr. Reshad Hosseini](#) ↗

**Internship**

○ **HARA<sup>1</sup>:**

**Summer 2019**

- Implementing a Persian speech to text network with Persian data set (from Mozilla).
- Learning [Deep Speech](#), pytorch and other frameworks for the model.
- Learning the basics of mathematics and theory behind the language model and acoustic model.
- Using Python libraries such as Librosa, SpaCy, and ... in the process.

Instructor: [Dr. Reshad Hosseini](#) ↗

○ **Taarlab<sup>2</sup>**

**Summer 2018**

- Learning how to receive feedback data from [Sanbot](#)
- Learning the basics of how to work with android studio.

Instructor: [Dr. Mehdi Tale Masouleh](#) ↗

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<sup>1</sup>HARA is an AI start-up company based in Tehran engaged in applying state-of-the-art machine learning, natural language processing and computer vision techniques to commercial domains.

<sup>2</sup>Human and Robot Interaction Laboratory always uses new approaches to communicate with other research centers and researchers.

## RELEVANT COURSES (Graduate courses are indicated by \*)

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o Deep Learning with applications*	19/20	o Algorithm Design 1	19.9/20
Instructor: Dr. Reshad Hosseini ☞	Spring 2020	Instructor: Dr. Hamid Mahini ☞	Fall 2019
o Pattern Recognition* <sup>3</sup>	20/20	o Data Structures	17.6/20
Instructor: Prof. Babak N. Araabi ☞	Spring 2019	Instructor: Dr. Fathiyeh Faghih ☞	Spring 2019
o Machine Vision*	16.25/20	o Operational Research	20/20
Instructor: Dr. Reshad Hosseini ☞	Fall 2020	Instructor: Mohammad Shokri ☞	Fall 2019
o Linear Algebra	19.25/20	o Advanced Programming	17.9/20
Instructor: Dr. Farzad Rajaei salmasi ☞	Spring 2019	Instructor: Dr. Ramtin Khosravi ☞	Fall 2019
o Digital Signal Processing	16.43/20	o Discrete Mathematics	18.75/20
Instructor: Dr. Majid Badieirostami ☞	Fall 2020	Instructor: Dr. Siamak Mohammadi ☞	Fall 2018
o Engineering Probability and Statistics	19.5/20	o Mechatronics	20/20
Instructor: Dr. Amir Masoud Rabiei ☞	Fall 2017	Instructor: Dr. Mehdi Tale Masouleh ☞	Spring 2019

## COURSE PROJECTS (The GitHub's code are hyperlinked)

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### Machine Learning Problem [\[GitHub\]](#) *Fall 2020*

- o Implementing a Fast KNN model by using the idea of paper [Fast k-Nearest Neighbour Search via Prioritized DCI](#) from scratch. [\[GitHub\]](#)

### Machine Vision Course Projects (Current Semester) [\[GitHub\]](#) *Fall 2020*

- o Analyzing images in the frequency domain, implementing Histogram Equalization, and Gaussian Image Pyramid resampling method. [\[GitHub\]](#)
- o Implementing a line detection model using Marr-Hilderth and Canny Edge Detector algorithm. Face recognition by comparing feature points. [\[GitHub\]](#)
- o Making Panorama images by using RANSAC algorithm. [\[GitHub\]](#)
- o Using the Structure From Motion algorithm for depth detection, and camera calibration(python). [\[GitHub\]](#)
- o Face/Skin detection based on skin color extraction scheme by using python. [\[GitHub\]](#)

### Deep Learning with Application Course Projects [\[GitHub\]](#) *Spring 2020*

- o Implementing the [Hierarchical Multi-Scale Attention Network](#) for semantic segmentation using Pytorch library. [\[GitHub\]](#)
- o Implementing 2 layers of [Deep-RBFNetwork with robust classification and rejection](#) and an adversarial attack using FGSM method from scratch just by using NumPy and pandas libraries. [\[GitHub\]](#)
- o Implementing [Human Pose Estimation](#) with CNN(AlexNet) using Pytorch library. [\[GitHub\]](#)
- o Implementing an Anomaly Detection network with auto encoders using Pytorch library [\[GitHub\]](#)
- o Implementing Sentimental Analysis network with unidirectional, bidirectional and pyramid LSTM networks using Pytorch library. [\[GitHub\]](#)
- o Tuning a pre-trained BERT model over a new data set using Pytorch library. [\[GitHub\]](#)
- o Implementing the encoder section of the [Transformer Network](#) for speech recognition using Pytorch libraries. [\[GitHub\]](#)

### Pattern Recognition Course Projects [\[GitHub\]](#) *Spring 2019*

- o Implementing Parametric and Non-parametric PDF Estimation Algorithms using NumPy.[\[GitHub\]](#)
- o Implementing the Expectation-Maximization (EM) Algorithm for Gaussian Mixture Density Model using NumPy. [\[GitHub\]](#)
- o Implementing Dimensionality Reduction Algorithms(PCA,LDA) using NumPy. [\[GitHub\]](#)
- o Implementing Classifiers such as Bayes' Optimal Classifier, SVM using NumPy. [\[GitHub\]](#)
- o Implementing Classifier such as MLP/RBF Networks using NumPy. [\[GitHub\]](#)
- o Implementing various Clustering Algorithms such as Agglomerative Hierarchical, Sequential, and k-means using NumPy. [\[GitHub\]](#)

### Mechatronics [\[GitHub\]](#) *Spring 2019*

- o Digit recognition using OpenCV python. [\[GitHub\]](#)

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<sup>3</sup>Has the same syllables as the Machine learning course in other universities.

## TEACHING EXPERIENCE

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Teaching Assistant, *University of Tehran*

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|--|-------------|---|-----------------------------|
| ○ <b>Pattern Recognition[Grad Course]</b><br>Teaching Assistant<br><i>Instructor: <a href="#">Prof. Babak N. Araabi</a></i>                          | Fall 2019   | ○ <b>Intelligent Systems</b><br>Head Teaching Assistant<br>Teaching Assistant<br><i>Instructor: <a href="#">Dr. Reshad Hosseini</a></i> | Fall 2020<br>Fall 2019      |
| ○ <b>Engineering Probability and Statistics</b><br>Teaching Assistant<br><i>Instructor: <a href="#">Dr. Behnam Bahrak</a></i>                        | Fall 2019   | ○ <b>Discrete Mathematics</b><br>Teaching Assistant<br><i>Instructor: <a href="#">Dr. Siamak Mohammadi</a></i>                          | Spring 2020                 |
| ○ <b>Linear Algebra</b><br>Teaching Assistant<br><i>Instructor: <a href="#">Prof. Mohammad Javad Yazdanpanah</a></i>                                 | Spring 2020 | ○ <b>Engineering Mathematics</b><br>Head Teaching Assistant<br><i>Instructor: <a href="#">Dr. Mehdi Tale Masouleh</a></i>               | (4 Semesters <sup>4</sup> ) |
| ○ <b>Introduction to Computing systems and programming</b><br>Teaching Assistant<br><i>Instructor: <a href="#">Dr. Manouchehr MoradiSabzevar</a></i> | Fall 2018   | ○ <b>Operational Research</b><br>Teaching Assistant<br><i>Instructor: <a href="#">Mohammad Shokri</a></i>                               | Fall 2020                   |

Lecturer, *Kerman's High schools*

- Volunteered to teach physics to students attending Olympiad and University entrance exam.

## SKILLS

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- **Programming**
  - Proficient in C/C++, Python, MATLAB, Verilog, ARM, L<sup>A</sup>T<sub>E</sub>X
  - Familiar with HTML, CSS, Java
- **Frameworks, Softwares, Libraries and Operational Systems**
  - Pytorch, Tensorflow, NumPy, OpenCV(python & C++), scikit-learn, Deep Speech, Linux

## LANGUAGES

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- English: **TOEFL iBT**(Jan. 9, 2021) - 94/120 (Reading: 17, Listening: 26, Speaking: 29, Writing: 22)
- Persian: Native

## REFERENCES (All the mentioned instructors have a hyperlink)

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- Dr. Reshad Hosseini [Assistant Professor]
  - PhD Graduated from Technical University of Berlin
  - Email: ✉ [reshad.hosseini@ut.ac.ir](mailto:reshad.hosseini@ut.ac.ir)
  - Website: <https://ece.ut.ac.ir/en/~reshad.hosseini>
- Dr. Mehdi Tale Masouleh [Associate Professor]
  - PhD Graduated from Laval University
  - Email: ✉ [m.t.masouleh@ut.ac.ir](mailto:m.t.masouleh@ut.ac.ir)
  - Website: <https://ece.ut.ac.ir/en/~m.t.masouleh>
- Prof. Babak N. Araabi [Professor]
  - PhD Graduated from Texas A&M University
  - Email: ✉ [araabi@ut.ac.ir](mailto:araabi@ut.ac.ir)
  - Website: <https://ece.ut.ac.ir/en/~araabi/>
- Dr. Behnam Bahrak [Assistant Professor]
  - PhD Graduated from Virginia Tech
  - Email: ✉ [bahrak@ut.ac.ir](mailto:bahrak@ut.ac.ir)
  - Website: <https://ece.ut.ac.ir/en/~bahrak>

For others available upon request

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<sup>4</sup>Fall 2019 & 2018, Spring 2019 & 2020