Amin Fadaeinejad

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EDUCATION

University of Tehran, Tehran, Iran — Sep. 2016 - Jan. 2021(expected)
- B.Sc in Electrical Engineering (Control) — **GPA: 18.71/20 (3.91/4)**
  Rank 3^{rd} out of approximate 110 undergraduate students
- Minor in Computer Engineering — Sep. 2018 - Jan. 2021(expected)
  Passed a number of courses in Computer Engineering — **GPA: 18.08/20 (4/4)**

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

- Theoretical Machine Learning
- Deep Learning
- Signal Processing (image and video)
- Machine Vision
- Pattern Recognition

HONORS AND AWARDS

- Ranked 3^{rd} out of approximate 110 undergraduate students (Ranked 2^{nd} 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^{th} among more than 160,000 participants in Nationwide Universities Entrance Exam (B.Sc.). — Sep. 2016
- Passing the first stage of Physics Olympiad for two years — Jan. 2014 & Jan. 2015
- Ranked 23^{rd} in Sharif National Student Competition — Mar. 2015
- Ranked 3^{rd} in the country at the second stage of Paya Scientific League in physics — Jun. 2015

RELEVANT COURSES (Graduate courses are indicated by *)

- **Deep Learning with applications**[1]* — 19/20
  Instructor: Dr. Reshad Hosseini — Spring 2020
- **Pattern Recognition*** — 20/20
  Instructor: Prof. Babak N. Araabi — Spring 2019
- **Machine Vision*** (to be taken) — TBA
  Instructor: Dr. Reshad Hosseini — Fall 2020
- **Linear Algebra** — 19.25/20
  Instructor: Dr. Farzad Rajaei salmasi — Spring 2019
- **Digital Signal Processing** (to be taken) — TBA
  Instructor: Dr. Majid Badieirostami — Fall 2020
- **Engineering Probability and Statistics** — 19.5/20
  Instructor: Dr. Amir Masoud Rabiei — Fall 2017
- **Algorithm Design 1** — 19.9/20
  Instructor: Dr. Hamid Mahini — Fall 2019
- **Data Structures** — 17.6/20
  Instructor: Dr. Fathiyeh Faghih — Spring 2019
- **Operational Research** — 20/20
  Instructor: Mohammad Shokri — Fall 2019
- **Advanced Programming** — 17.9/20
  Instructor: Dr. Ramtin Khosravi — Fall 2019
- **Discrete Mathematics** — 18.75/20
  Instructor: Dr. Siamak Mohammadi — Fall 2018
- **Mechatronics**[2] — 20/20
  Instructor: Dr. Mehdi Tale Masouleh — Spring 2019

[1] Name in transcript: Deep learning with application in machine vision and audio processing
[2] Name in transcript: Fundamentals of Mechatronics Engineering

RESEARCH EXPERIENCE

B.Sc. Thesis **Summer & Fall 2020**

- B.Sc Final Project (Currently working on)
  - Automatic number-plate recognition systems.
  - Implementing a new method or a proper network architect for the color and car model classification.

  Instructor: Dr. Reshad Hosseini

Intership

- HARA[3]: **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[4] **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

COURSE PROJECTS (The GitHub's codes are hyperlinked)

Deep Learning with Application Course Projects [GitHub] *Spring 2020*

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

Pattern Recognition Course Projects [GitHub] *Spring 2019*

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

Systems Analysis Course Projects [GitHub] *Spring 2018*

- Image Compression with encoder, decoders using MATLAB. [GitHub]

TEACHING EXPERIENCE

Teaching Assistant, *University of Tehran*

- **Pattern Recognition[Grad Course]**
  Teaching Assistant Fall 2019
  Instructor: Prof. Babak N. Araabi
- **Engineering Probability and Statistics**
  Teaching Assistant Fall 2019
  Instructor: Dr. Behnam Bahrak

[3]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.

[4]Human and Robot Interaction Laboratory always uses new approaches to communicate with other research centers and researchers.

- **Linear Algebra**
  Teaching Assistant — Spring 2020
  Instructor: Prof. Mohammad Javad Yazdanpanah
- **Introduction to Computing systems and programming**
  Teaching Assistant — Fall 2018
  Instructor: Dr. Manouchehr MoradiSabzevar
- **Intelligent Systems**
  Head Teaching Assistant — Fall 2020
  Teaching Assistant — Fall 2019
  Instructor: Dr. Reshad Hosseini
- **Discrete Mathematics**
  Teachong Assistant — Spring 2020
  Instructor: Dr. Siamak Mohammadi
- **Engineering Mathematics**
  Head Teaching Assistant — (4 Semesters[5])
  Instructor: Dr. Mehdi Tale Masouleh
- **Operational Research**
  Teaching Assistant — Fall 2020
  Instructor: Mohammad Shokri

Lecturer, *Kerman's High schools*
- Volunteered to teach physics to students attending Olympiad and University entrance exam.

SKILLS

- **Programming**
  - Proficient in C/C++, Python, MATLAB, Verilog, ARM, LaTeX
  - Familiar with HTML, CSS, Java
- **Frameworks, Softwares and Libraries**
  - Pytorch, NumPy, scikit-learn, Deep Speech, Modelsim, Quartus II, Multisim, Proteus

LANGUAGES

- Persian: Native
- English: Fluent, **TOEFL iBT**(Will be taken) **GRE**(Will be taken)

REFERENCES (All the mentioned instructors have a hyperlink)

- Dr. Reshad Hosseini
  - PhD Graduated from Technical University of Berlin
  - Email: reshad.hosseini@ut.ac.ir
  - Website: `https://ece.ut.ac.ir/en/~reshad.hosseini`
- Dr. Mehdi Tale Masouleh
  - PhD Graduated from Laval University
  - Email: m.t.masouleh@ut.ac.ir
  - Website: `https://ece.ut.ac.ir/en/~m.t.masouleh`
- Prof. Babak N. Araabi
  - PhD Graduated from Texas A&M University
  - Email: araabi@ut.ac.ir
  - Website: `https://ece.ut.ac.ir/en/~araabi/`

For others available upon request

[5] Fall 2019 & 2018, Spring 2019 & 2020