Amir
E.P.Moghaddam

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Amir E.P.Moghaddam

Computer Science and Engineering

Education

2017 - 2022, K. N. Toosi University of Technology, Tehran, Iran
B.Sc., Computer Engineering
GPA : 15.22/20 (3/4)

2013 - 2017, Beheshti High school, (administered by National Organization for Development of Exceptional Talents (NODET)), Ghayen, Iran
Physics and Mathematics Diploma GPA : 19.47/20.00 (4/4)

Resrach Interests

Machine Learning
Computer Vision and Image Processing

Honors and Rewards

Ranked 180th among more than 50,000 applicants in the nationwide university entrance, 2017

Ranked 4st in Beheshti High school entrance exam among about 1000 applicants (administered by National Organization for Development of Exceptional Talents (NODET)), 2013

Publication

Windshield Reflection Removal under the supervision of Dr. Behrooz Nasihatkon. (My BSc thesis. Will be published soon)

Research Experience

Motion planning using Reinforcement Learning for self-driving cars. Research internship under the supervision of Prof. Dr. Matthias Althoff at the Technical University Of Munich. (JUL-SEP 2021).

Teaching Experience

fall 2020, **TA and grader of Signal And Systems by Dr. Fatemeh Rezaei**

winter 2019, **TA and grader of Hardware Software Co-design by Dr. H. Roodaki**

Selected Courses and Certificates

spring 2021, **University College London, Reinforcement Learning by Prof. David Silver**

summer 2020, **MIT RES.6-012, Introduction to Probability by Prof. John Tsitsiklis**

summer 2020, **MIT 18.06, Linear Algebra by Prof. Gilbert Strang**

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spring 2020, **Stanford CS231n, Convolutional Neural Networks for Visual Recognition by Prof. Fei-Fei Li**

spring 2020, **Neural Networks and Deep Learning by Prof. Andrew Ng**

spring 2020, **Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization by Prof. Andrew Ng**

spring 2020, **Structuring Machine Learning Projects by Prof. Andrew Ng**

fall 2019, **MIT 6.003, signals and systems by Prof. Dennis Freeman**

fall 2019, **Georgia Tech, Introduction to Computer Vision by Prof. Aaron Bobick**

summer 2019, **Intro to TensorFlow for Deep Learning by AWS**

summer 2019, **Stanford, Machine Learning by Prof. Andrew Ng**

Selected AI Projects

Spring 2021, Fundamentals of Computer Vision by Dr. Behrooz Nasihatkon (my grad :19.15/20)

Selected Projects :

- Final Project: producing BEV (bird's eye view) perspective of a soccer match live stream. My solution consists of tree major parts. First, extracting features to compute the desired homography matrix between the two perspectives. Second, extracting players and referee (patches) using image processing methods and compute their position in the BEV perspective using the computed homography matrix. Third, train a CNN capable of classifying extracted patches into three class, team A, team B and the referee. So the input is a soccer match stream of any perspective and the output is a stream of the field from BEV view with colored circles representing players and the referee. (PyTorch, OpenCV)

Autumn 2020, System Analysis and Design by Dr. Mehdi Esnaashari (my grad :17.5/20)

Selected Projects :

- Recommender System for an art website (combination of content base, collaborative filtering, and latent space model) (PyTorch)

Spring 2020, Stanford cs231n by Prof. Fei-Fei Li

Selected Projects :

- CNN Network Visualization (pyTorch)
- Deep CNN form for classifying cifar-10 Images (PyTorch)
- Neural Net form scratch for classifying cifar-10 Images (python)
- RNN for Image captioning COCO data set (PyTorch)
- LSTMs For Image captioning COCO data set (PyTorch)
- Style Transfer " famous Art Works to Images " (PyTorch)
- Standard GAN, DC-GAN, LS-GAN to generate Images close to MNIST data. (PyTorch)
- SVM from scratch for classifying cifar-10 Images (python)

Spring 2020, Neural Networks and Deep Learning by Prof. Andrew Ng

Selected Projects:

- Deep Neural Network for Image Classification (python)
- Logistic Regression for cat recognition (python)

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Spring 2020, Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization by Prof. Andrew Ng
Selected Projects:

- leveling up network accuracy by diffrent triks :
  initialization i.e. Xavier, ...
  reguralization i.e. drop out, batch normalization,..
  optimazation triks i.e. Adam, Momentum,..
  architectral tricks like residual blocks, ... (python)

Summer 2019, Stanford University Machine Learning by Prof. Andrew Ng,
Selected Projects:

- Image Compression With K-Means Clustering (Matlab|Octave)
- PCA On Face Images (Matlab|Octave)
- Recommender Systems For Movies (Matlab|Octave)

Other Projects

- Text efficient encoding by Huffman algorithm. (C++, Algorithms and data structures, Dr. A. Ahmadi)
- Modern dynamic text editor including a good graphic interface and all essentials. (Java, advanced programming, Dr. M. Esnaashari)
- Flight management program capable of managing flights, tickets reservation and selling based on object orientation. (java, advanced programming, Dr. M. Esnaashari)
- Classic speech processing applications. (Python, NLP, Dr. R. Doost)
- Designing and Implementing a database similar to bama.ir a famous Iranian website of car deals. (SQL, database course, Dr. S. Farzi)
- Tetris game. (C, Introduction to computer programing, Dr. B. Nasihatkon)

Programming Languages

Python , Java , C , C++ , Matlab , Octave , SQL , Assembly

Languages and Test Scores

Persian (native)
English (TOEFL iBT 96)