Amin Fadaeinejad

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SUMMARY

Research assistant at BioMotion Lab working on Viewpoint Synthesis in real-time, experienced in developing deep learning models.

RESEARCH EXPERIENCE

Research Assistant at BioMotion Lab (York University)   Fall 2021 to Present
Supervised by: Prof. Nikolaus Troje & Dr. Marcus A. Brubaker
- Working on a View Synthesis model for face generation in real-time (on going).
- Designed a pipeline calculating the accuracy and precision of 3D sensors using Motion Capture technology.
- Created a data visualization framework to represent accuracy and precision as volumetric representations.

Research Assistant at HARA AI   Summer & Fall 2020
Supervisor by Dr. Reshad Hosseini
- Collaborated with a team of deep learning and computer vision scientists to develop an Intelligent Traffic System (ITS).
- Developed a model architect using Pytorch that predicts the colour and model of a vehicle with 90.77% accuracy.
- Exported Pytorch models to OpenCV (C++) to reduce the execution time by 75%.

Research Intern at HARA AI   Summer 2019
Supervisor by Dr. Reshad Hosseini
- Collaborated with the natural language processing research team to develop and implement a speech-to-text model (Persian Langauge) for understanding users' commands.
- Extracting features from audio signals using MFCC and MEL spectrogram (Librosa library).
- Creating a word library by cleaning and extracting words from approximately 5GB of newspaper text.
- Implemented neural networks using frameworks such as Pytorch and Keras.

Intern at Taarlab   Summer 2018
Supervised by: Dr. Mehdi Tale Masouleh
- Developing an application for controlling robots from phone.
- Programming IR-sensor for detecting and measuring the robots movement. Improved the position accuracy by using IR sensors instead of motor encoders.

PROJECTS

Neural Networks and Deep Learning   Winter 2022
- Implementing the Unpaired Image-to-Image Translation using Cycle-Consistent Adversarial Networks model using Python. [GitHub]

Deep Learning with Application [GitHub]   Spring 2020
- Developed the Hierarchical Multi-Scale Attention Network for semantic segmentation using Pytorch library. [GitHub]
- Created 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]
- Structured Human Pose Estimation with CNN(AlexNet) using Pytorch library. [GitHub]
- Designed an anomaly detection network with auto encoders using Pytorch library [GitHub]
- 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 [GitHub]   Spring 2019
- Parametric and non-parametric PDF estimation algorithms using NumPy.[GitHub]
- Expectation-Maximization (EM) algorithm for Gaussian mixture density model using NumPy. [GitHub]
- Dimensionality reduction algorithms(PCA,LDA) using NumPy. [GitHub]
- Implementing classifiers such as Bayes' Optimal Classifier, SVM using NumPy. [GitHub]
- Classifier such as MLP/RBF networks using NumPy. [GitHub]
- Clustering algorithms such as Agglomerative Hierarchical, Sequential, and k-means using NumPy. [GitHub]

EDUCATION

York University, Toronto, Canada   Sep. 2021 - April 2023 (Expected)
- M.A.Sc in Electrical and Computer Engineering   GPA: 8.75/9 (A+)

University of Tehran, Tehran, Iran   Sep. 2016 - Aug. 2021
- B.Sc in Electrical Engineering (Control)   GPA: 18.59/20 (3.91/4)
  Rank 3rd 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)

TEACHING EXPERIENCE

Teaching Assistant, York University
- Fundamentals of Data Structures   Fall 2021-2022   • Computer Organization   Fall 2019

Teaching Assistant, University of Tehran
- Pattern Recognition   Fall 2019   • Intelligent Systems   Fall 2019-2020
- Engineering Probability and Statistics   Fall 2019   • Engineering Mathematics   Sprint 2017-2020
- Linear Algebra   Spring 2020   • Operational Research   Fall 2020

HONORS AND AWARDS

- Member of Centre for Vision Research (CVR) and VISTA group at York University.   Sep. 2021
- Received the York Graduate Scholarship (Due to high GPA).   Sep. 2021
- Ranked 3rd out of approximate 110 undergraduate students (Ranked 2nd in Control Engineering), school of Electrical and Computer Engineering, University of Tehran   Aug. 2021

SKILLS

- Programming
  - Proficient in Python, Matlab, C/C++, LaTeX
  - Familiar with Java, SQL
- Frameworks, Softwares and Libraries
  - Pytorch, Keras, NumPy, Scikit-Learn, Deep Speech

REFERENCES

Others are available upon request