Gohur Ali

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Education

University of Washington (Bothell, WA)   **Sept 2016 - April 2020**
B.S. in Computer Science & Software Engineering | GPA: 3.73 | Annual Dean's List

- **Coursework:** Computer Vision, Cloud Computing, Linear Algebra, Operating Systems, Hardware, Database Systems, Data Structures & Algorithms, Software Engineering, Machine Learning, Statistics for Machine and Deep Learning

Experience

AVA.Retail.ai   **Sept 2018-Feb 2019**
Machine Learning Intern

- Developed an automated synthetic image data generator using Python & Blender that generated 5000 unique images per day
- Trained a convolutional neural network (CNN) based on RetinaNet with single-shot learning for object detection in TensorFlow using the generated synthetic data combined with real data to improve model detection performance
- Created support vector machine model using Scikit-Learn for object classification and detection for R&D purposes
- Worked closely with QA team to discover and resolve software defects with test-driven development

Research

University of Washington Bothell Dept. of Computer Science   **Sept 2018-Mar 2019**
Undergraduate Researcher | Advisors: Dr. Arkady Retik & Dr. Diala Ezzeddine

- Worked to automate & simplify job applicant skill evaluation to find ideal candidates for specific jobs by developing an NLP deep learning architecture pipeline
- Developed a novel shallow 1-D CNN architecture in TensorFlow & Keras for sentence classification with pre-trained embeddings which competes with deeper architectures based on standard datasets (97% accuracy)
- Applied statistical methods and evaluation metrics with Scikit-Learn to analyze CNN results and performance

Projects

YOLOv2 Object Detection ⚙ https://github.com/gohurali/YOLOv2-Object-Detection

- Developed a pipeline between the backbone 19-layer convolutional neural network and YOLOv2 layers in PyTorch to detect and classify trained objects in images
- Implemented K-Means clustering to generate K average size anchor bounding boxes found in the dataset
- Implemented a variant from the originally proposed loss function to support any number of anchor boxes

Lane & Vehicle Detection ⚙ https://github.com/gohurali/Lane_Vehicle_Detection

- Calculated Hough transform lines for lanes using ROI, edge detection, and color spacing techniques in C++ and OpenCV
- Trained a SVM model for classification on open source datasets for vehicles and non-vehicles at a 96% accuracy
- Used pyramid scaling sliding window to obtain bounding boxes with non-max suppression to detect vehicles

Financial Stock Forecast Prediction ⚙ https://github.com/gohurali/Financial-Market-Prediction

- Implemented financial indicator algorithms such as simple moving average, Bollinger bands, and Ichimoku cloud for data exploration and generation with NumPy and Pandas in Jupyter notebooks
- Developed the full pipeline (data loading, training, testing) with various deep learning models for performance comparison
- Deployed models to PC and Android for on-demand inference with ONNX

Neural Style Transfer ⚙ https://github.com/gohurali/Neural_Style_Transfer

- Created a pipeline that combines two input image's features into a single image in Python
- Used the pre-trained VGG19 architecture's convolutional layers as feature extractors with PyTorch
- Calculated loss for content, style and total based on ground truth features and output model features

Technical Skills

Languages	Tools
Python, Java, C#, C++, JavaScript, R, SQL, LaTeX, HTML/CSS, PHP, Bash	TensorFlow, Keras, PyTorch, OpenCV, Scikit-Learn, Pandas, Flask, .NET, Linux, AWS, Azure