Andrew Hoang

Research in Computer Vision and Natural Language Processing
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Summary

Deep learning researcher focused on Natural Language Processing and Computer Vision. 2+ years of experience in designing models to solve both research and application-based problems using Python coupled with PyTorch or TensorFlow. Passionate about solving interesting problems and learning something new.

Education

University of Washington Seattle, WA
B.S. Computer Science (Data Science); GPA: 3.70 *Sep 2016 – Jun 2019*
Coursework: Computer Vision; Conversational AI; Deep Learning; Natural Language Processing; Machine Learning; Data Visualization; Data Structures & Parallelism; Introduction to Data Management
Scholarships: Microsoft Endowed Scholarship, Washington Space Grant

Technical Skills

Proficient: Python, C/C++, Java, JavaScript, PyTorch, TensorFlow, Git, Linux, Bash, Jupyter
Experience in: React, SQL, Ruby, Node.js, AWS, OpenCV

Experience

Research Intern: *Allen Institute of Artificial Intelligence* *Oct 2018 – Jun 2019*
- Currently working on visual common-sense reasoning
- Intern (30 hours a week) on the PRIOR team under Ali Farhadi focusing on high level computer vision research
- Designed seq2seq models and transformer models that achieved a score of 87% on the given task

Deep Learning (NLP & CV) Research Assistant: *University of Washington* *Mar 2017 – Present*
- Currently working on applying transformer decoders to document summarization with policy learning
- Created an Image Captioning system using an encoder - decoder model with attention in PyTorch
- Achieved a Bleu-4 score of 21.8 on MS COCO using VGG-16 with a LSTM and beam size of 10
- Added multiprocessing which decreased training and evaluation time by over 60%
- Implemented multi-layered bidirectional LSTMs for generation of cooking recipes in PyTorch

Deep Learning (NLP & CV) Consultant: *Classify & Process* *Feb 2018 – Present*
- Currently working on designing autoencoders for image clustering
- Implemented Bi-LSTM CRF models for nested tagging in PyTorch achieving F1 scores of 0.9 on GENIA data set
- Constructed neural models for image segmentation in Pytorch using CNNS and fully connected CRFs
- Modified AI2 *Extracting Scientific Figures from Text* model for better generalization in non-scientific documents

Software Design Engineer Intern: *Pike13* *Jun 2017 – Sep 2017*
- Built RESTful API endpoints and test suites for mobile application development using Ruby on Rails
- Discovered, ticketed, and fixed several web application UX bugs and documentation errors
- Improved client sign in iOS WebView application speed by 30% through the implementation of a React SPA

Wireless Security Research Assistant: *University of Washington Bothell* *Sep 2016 – Sep 2017*
- Achieved 85% accuracy using time series analysis for anomaly detection in OpenCV and C++
- Condensed data using PCA and used mobile agents to drop overhead between IoT devices by over 40%
- Built CNN based Intrusion Detection Systems for IoT networks that got 60+% classification accuracy in PyTorch

Projects

Mental Elf (Class) *Mar 2018 – Jun 2018*
- Created an Alexa skill focused discussing mental health and mental health advocacy in Python
- Designed a crawler for gathering information on mental health conditions and populating a DynamoDB table
- Processed response sentiment to determine FSM traversal for conversation topic shifts

Hashtag Generation (Class) *May 2018 – Jun 2018*
- Developed a seq2seq model and a multilabel classification model for hashtag generation in PyTorch
- Baselined the two models using hamming distance, achieving a minimum distance of 1.4×10^{-3}
- Presented results in poster form and demoed models real time in a Jupyter notebook

Emoji Talk (Hackathon) Oct 2017
- Appended emojis to voice translated text for improved messaging in React and PyTorch
- Integrated Microsoft LUIS ASR API to get text translation from audio input
- Utilized sentiment analysis and entity extraction to append context appropriate emojis to the end of text

Neural Net Chess (Personal) *Jan 2016 – Oct 2016*
- Adapted a feedforward neural network to play chess through reinforcement learning using TensorFlow