MICHAEL PEET

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EXPERIENCE

Software Developer (Contract) May - Oct 2020

Local Line, Kitchener, Ontario

- Identified/rewrote multiple sections of code; fixed major performance issues, **decreased AWS costs by $6200/year.**
- Optimized Django ORM queries; fixes **made pages load 4x faster on average**, especially for larger customers

Machine Learning Developer Intern May - Aug 2019

Bloomberg, New York, NY

- Improved linear spam classifier by 1% to achieve **94% Precision at required 80% Recall** in low latency environment
- Experimented with combining MinHashes of tokens and Brown Clusters as features for Soft-Margin SVM
- Improved inference timing accuracy and fixed feature generation bugs in C++ model training framework
- Standardized model evaluation pipeline by adding dataset splitting, cross validation, and improved error breakdown
- Explored difference between composition of news and opinion articles, created **BiLSTM+Attention model to classify them with 93% F1.** Model and findings were presented to Artificial Intelligence Group and productized

Machine Learning Developer Intern Sep - Dec 2018

Miovision, Kitchener, ON

- Designed, trained, and deployed an improved SSD object detection model to production, which **decreased false negative rates by 61% on average** and resolved critical detection issues. Efforts received company-wide recognition
- Rewrote Smooth L1 loss function in Tensorflow resulting in experimental model with **50% decreased false positive rate**
- Identified and fixed bottleneck in training infrastructure, **making model training 2x faster on average**
- Created Synthetic Data Training System using CARLA Simulator and OpenCV to improve model performance on underrepresented classes and challenging conditions
- Suggested implementation of cyclic learning rate, leading to better performance and shorter model training times

Software Developer Intern May 2017 - Apr 2018

Miovision, Kitchener, ON

- Utilized Ruby-Prof for performance profiling; fixes **made report generation 200x faster, PDF generation 6x faster**
- Optimized Ruby on Rails' ActiveRecord ORM queries to make **website performance 2.3x faster** on average
- Decoupled long running tasks into Sidekiq Workers to eliminate legacy code, **projected to save $21,800 yearly**
- Diagnosed and fixed a production emergency in under 4 hours, which had caused all servers to be unresponsive

*** **Complete Work History on my Website: http://sumobot1.github.io** ***

RECENT PROJECTS

TensorLine – Tensorflow Model Training Pipeline

- Created data pipeline using Tensorflow to prepare and load binary tfrecords using iterators for faster training
- Made trained models easy to deploy by **exporting them as frozen graphs**, loading those graphs to make predictions

Kaggle Machine Learning Challenges – Deep Neural Networks, Object/Sentiment Classification, NLP

- Wrote Convolutional Neural Network to classify 80x80 images of cats and dogs with **96% accuracy**
- Improved Performance with data augmentation, He Normal weight initialization, and hyperparameter optimization
- Wrote LSTM network to detect and classify toxic internet comments in multiple languages with **0.985 ROC AUC**
- Improved Performance using pre-trained word vectors, data augmentation using Google Translate, and early stopping based on validation ROC AUC

SKILLS

Languages: Python, Ruby, C++, R, HTML, CSS, JavaScript, Bash, Java, MySQL, C, Objective-C, MATLAB

Frameworks: Tensorflow (GPU), Keras, Ruby on Rails, Slim, Flexbox Grid, jQuery, React, AngularJS, MongoDB, Django

Other: Matplotlib, NumPy, OpenCV, NLTK, Scikit-learn, Word2Vec, Pandas, SciPy, CARLA Simulator, Conda, Elasticsearch

EDUCATION

Mechatronics Engineering, Honours BASc/Artificial Intelligence Specialization (with Distinction) 2015-2020

University of Waterloo, Waterloo, ON (President's Scholarship)