MICHAEL PEET

sumobot1.github.io | michaelpeet97@gmail.com | in/mjpeet | sumobot1

RECENT EXPERIENCE

Software Developer - Local Line May - Oct 2020

- Identified and fixed major performance and caching issues, **decreasing costs by $77,200/year.**
- Optimized Django ORM queries, making pages load **over 4x faster**

Machine Learning Developer Intern - Bloomberg (Artificial Intelligence Group) May - Aug 2019

- Presented and Productized **BiLSTM+Attention model to classify news articles with 93% F1**
- Improved SVM spam classifier to achieve **94% Precision** at required 80% Recall with **zero performance overhead**
- Improved inference timing accuracy and fixed unexpected behavior in C++ model training framework
- Standardized model evaluation pipeline by adding dataset splitting, cross validation, and improved error breakdown
- Researched combining MinHashes of tokens and Brown Clusters as features for Soft-Margin SVM

Machine Learning Developer Intern - Miovision (Core Intellectual Property Team) Sep - Dec 2018

- Designed and deployed an improved SSD object detection model, which **decreased false negative rates by 61%**
- Received company-wide recognition for **resolving critical detection issues** with production model
- Rewrote Smooth L1 loss function in Tensorflow resulting in model with 50% decreased false positive rate
- Isolated and removed bottlenecks in training infrastructure, making **model training 2x faster**
- Researched improving RMSProp optimizer with **cyclic learning rate**, for better model convergence and faster training
- Created **Synthetic Data Training System** using CARLA Simulator to improve model performance on underrepresented classes and challenging conditions

Software Developer Intern - Miovision (DataLink Team) May 2017 - Apr 2018

- Utilized Ruby-Prof for performance profiling; fixes **made report generation 200x faster, PDF generation 6x faster**
- Optimized Ruby on Rails' ActiveRecord ORM queries, **improving page load times by 2.3x**
- Decoupled long running tasks into Sidekiq Workers to eliminate monolithic infrastructure, **saving $21,800 yearly**
- Diagnosed and **fixed a complete product outage in under 4 hours**

RECENT PROJECTS

TensorLine – Tensorflow Model Training Pipeline

- Created data pipeline using Tensorflow to **prepare and load binary tfrecords** for faster training
- Enabled exporting of trained models as **frozen graphs**, providing fast and simple deployment

SLAP. - Mechatronics Fourth Year Design Project (Voestalpine Award for Design Elegance)

- Created web portal to help drivers find parking near a desired location using information from embedded sensors
- Created analytics dashboard to provide lot owners with insight into parking trends

Machine Learning/Data Science Projects

- Implemented fine-tuned **VGG16 ensemble** to classify cancer tissue slides at **96.4% accuracy**
- Wrote **BiLSTM+Attention model** to classify toxic comments in multiple languages with **0.985 ROC AUC**
- Experimented with **CNN hyperparameter tuning** to classify images of cats and dogs with **96% accuracy**
- Performed Exploratory Data Analysis, compared SVM and Logistic Regression performance to classify hate speech

SKILLS

Languages: Python, C++, Bash, SQL, R, MATLAB, JavaScript, Ruby

Frameworks: Tensorflow (GPU), Keras, Pytorch, Docker, React, Angular, MongoDB, Django, Elasticsearch, Ruby on Rails

Other: Matplotlib, NumPy, Pandas, Conda, OpenCV, NLTK, Scikit-learn, Word2Vec, CARLA Simulator, AWS, CircleCI

EDUCATION

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

University of Waterloo, Waterloo, ON (Term Dean's Honours List)