

# MICHAEL PEET

sumobot1.github.io | mipeet@edu.uwaterloo.ca | in/mipeet | github/sumobot1

## EXPERIENCE

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### 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 loss function in Tensorflow resulting in an experimental model with a 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 Autonomous Driving Simulator and OpenCV to improve model performance on underrepresented classes and challenging conditions

### Software Developer Intern

Jan - Apr 2018

Miovision, Kitchener, ON

- Utilized Ruby-Prof for performance profiling; fixes made report generation 200x faster, and 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

### Software Developer Intern

May - Aug 2017

Miovision, Kitchener, ON

- Investigated reproducing Datalink environment in Docker, allowing for 16x faster setup and cross-platform coding
- Implemented data visualization tool to help sales keep track of metrics and identify target areas for expansion

### Software Developer Intern

Sep - Dec 2016

BuildDirect, Kitchener, ON

- Wrote Python layout filtering module, resulting in 33% decrease in layout generation time and improved UI
- Created an integration with Github and Slack APIs to improve deployment workflow and provide visibility to engineers

### Software Support Specialist

Jan - Apr 2016

Videostream, Kitchener, ON

- Implemented requested features into Videostream app (2M+ users), resolved over 2200 customer support tickets
- Shipped Continue Watching and Recent Downloads features into the Android/iOS/Web apps, used by 5000+ users daily

## RECENT PROJECTS

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### TensorLine – Tensorflow Model Training Pipeline

- Created a model training pipeline using Tensorflow to prepare training and validation tfrecords
- Trained the model using iterators to load the data, export it as a frozen graph, and use it for predictions
- Wrote Jupyter Notebook scripts to identify and display samples with highest validation loss with Matplotlib
- Currently using TensorLine as a base to implement YOLOv3 object detection model based on research paper

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

- Wrote Convolutional Neural Network (CNN) to classify 80x80 images of cats and dogs with 96% accuracy
- Experimented with input normalization, He Normal weight initialization, and Bayesian Hyperparameter Optimization
- Wrote LSTM network to detect various types of toxic internet comments in multiple languages with 0.985 ROC AUC
- Experimented with pretrained word embeddings and data augmentation using Google Translate

## SKILLS

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

**Frameworks:** Tensorflow (GPU), Keras, Ruby on Rails, Slim, Flexbox Grid, jQuery, React.js, Angular.js, MongoDB, Django

**Other:** Matplotlib, NumPy, OpenCV, Scikit-learn, Word2Vec, CARLA Simulator, Conda, AWS, PassportJS, Google Maps APIs

## EDUCATION

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**Mechatronics Engineering, Honours Bachelor of Applied Science - Artificial Intelligence Option (BASc)**

2015 – 2020

University of Waterloo, Waterloo, ON

- President's Scholarship