R. BEN UPENIEKS

Bachelor of Software Engineering and ***Joint Honours in Statistics***; 3B
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EXPERIENCE

Hive AI – **Machine Learning Engineer** – Tensorflow, Pytorch, Python, C++ 05 – 09 / 2019

- Built, researched and proposed solutions for the company's first **video event detection model** and several image classification and object detection tasks in **Tensorflow** and **PyTorch**.
- Researched and implemented new approaches and improvements to an end-to-end **speech recognition and transcription** pipeline in C++ and **PyTorch** and optimized code to achieve a **10x** reduction in training time.
- Produced work that was deployed to and used by a major leading client hosting several million daily users.

Thomson Reuters – **Machine Learning Engineer** – Python, Java, Spring 09 – 12 / 2018

- Achieved a **3.5%** performance improvement on a highly optimized and tuned **NLP Question Answering** machine learning pipeline.
- Researched, implemented and experimented with several NLP data manipulation and feature engineering techniques to improve performance and execution time.
- Developed and improved the data and experimentation pipelines to facilitate more robust and flexible experiments.
- Presented results to researchers including the VP of Research and Development at Thomson Reuters

Focal Systems – **Deep Learning Engineer** – Computer Vision – Python, Keras 01 – 04 / 2018

- Trained a variety of deep learning models in **Keras** to solve novel industry computer vision problems in tasks including image classification, object detection, segmentation, optical character recognition and embedding.
- Designed and implemented a Python pipeline to automate model training and performance evaluation.

Ford Motor Company – **Software Developer** – C, C++ 05 – 09 / 2017

- Developed the backend for the in-vehicle touchscreen system.
- Refactored a monolithic codebase to provide a more robust interface for vehicle services to request notifications
- Designed and implemented notification arbitration, queueing and suppression subsystems in highly governed environments and exposed the API to internal clients in C and C++.

Contribution to 4th-Year Engineering Design Team - C++ 02 – 04 / 2017

- Analyzed open-source C++ 3D slicing software to improve the deconstruction of SolidWorks models into functional G-Code for 3D printing

PROJECTS

Experiments on Imbalanced Dataset Remedies in Deep Learning Computer Vision
Keras, Python *github.com/Bupenieks/ImbalancedMLC*

- Researched and proposed methods for dealing with imbalanced datasets for multilabel image classification
- Performed a grid-search across many different dataset sampling techniques and loss functions to achieve the best possible mean per-class F1 score on the PascalVOC dataset.

TinyHFS – Hierarchical File Storage System
Arduino – C *github.com/Bupenieks/TinyHFS*

- Developed and implemented a low level, navigable hierarchical file system on an Arduino microcontroller.

LANGUAGES & TOOLS

Strong: Python, C++, Tensorflow, PyTorch, Keras, NumPy, Cython, Java, Git
Experienced: C, Scala, R, MATLAB, Docker, SQL, MongoDB, Android SDK, JavaScript, Node.js

EDUCATION & AWARDS

University of Waterloo – ***Bachelor of Software Engineering*** with a ***Joint Honours in Statistics***; 3B Term Average : **89.2%** Dean's Honours List

SAT Subject Tests Math 1: 800 - Physics: 800 (twice) - **Perfect scores**
ACT Math: 36 - Science: 36 - **Perfect scores**; English: 34 - Reading: 34 - Writing: 11 - 99th percentile overall

Extra Coursework: Stanford CS 231n – CNNs for Visual Recognition & Coursera Deep Learning Specialization

University of Waterloo **Engineering Entrance Scholarship** & **President's Scholarship of Distinction**
Toronto FC & **Ontario Provincial Soccer Team** – Goalkeeper for Team Ontario and Toronto FC Academy