R. BENJAMIN UPENIEKS

(519) 591 9922 · ben.upenieks@uwaterloo.ca · github.com/bupenieks · https://bupenieks.github.io

EXPERIENCE

Thomson Reuters September – December 2018
Center for AI and Cognitive Computing – Software Engineer – Python, Java, Spring

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

Focal Systems January – April 2018
Deep Learning / Software Engineer – Computer Vision – Python, Keras

- Trained a variety of deep learning models to solve novel computer vision problems for industry applications.
- Designed and implemented a Python pipeline to automate model training and performance evaluation
- Processed numerous large image datasets with Python and performed augmentations to increase size, improve quality and minimize noise using several computer vision techniques.

Ford Motor Company May – September 2017
Software Developer – C, C++, Qt, QNX

- 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 February – April 2017
Diaphyseal Bone Manufacturing - C++

- Tasked with analyzing 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.
- Complete with memory defragmentation and full CRUD and auxiliary UNIX-like operations.

BeatSync
Android – Java *Google Play Store – github.com/Bupenieks/BeatSync*

- Created an app to synchronize rowing strokes with songs from your Spotify playlists using accelerometer data.

LANGUAGES & TOOLS

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

EDUCATION & AWARDS

University of Waterloo – ***Bachelor of Software Engineering*** with a ***Joint Honours in Statistics***; 3A Cumulative Average : **83%**

SAT Subject Tests Math 1: 800 - Physics: 800 - **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