R. BENJAMIN UPENIEKS

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EXPERIENCE

Focal Systems January – April 2018
Deep Learning Engineer – Computer Vision

- Trained a variety of deep learning models to solve novel computer vision problems for industry applications.
- Developed and improved a novel Optical Character Recognition pipeline using state-of-the-art model architectures and training paradigms.
- Worked with numerous computer vision model archetypes including image classification, bounding box regression, segmentation and embedding.
- Processed several large image databases with Python and performed augmentations to increase size, improve quality and minimize noise using several computer vision tecniques including image homography.

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

- Developed the backend for the in-vehicle touchscreen system with Qt.
- Refactored and decoupled an existing monolithic code base to provide a modular and more robust interface for vehicle services to request alerts and 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++.
- Wrote unit tests for notification API business logic and exception flows using Google Test & Google Mock.

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 the Efficacy of Imbalanced Dataset Remedies in Deep Learning Computer Vision
Keras

- Researched and proposed methods for dealing with imbalanced datasets for multilabel image classification in the context of deep learning.
- Performing a grid-search accross 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, bytewise hierarchical file system on an Arduino microcontroller.
- Complete with 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, Keras, NumPy, Pillow, C++, Git
Experienced: Tensorflow, C, Scala, MongoDB, Docker, Java, Android SDK, JavaScript, Node.js

EDUCATION

University of Waterloo, Candidate for ***Bachelor of Software Engineering*** (BSE); 2A
Cumulative Average : **85.17**% – 1A Dean's Honour List
Overloading courses with the intent of earning a ***Joint Honours Degree in Statistics***

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

Additional Coursework: - Stanford CS 231n – Convolutional Neural Networks for Visual Recognition
- Coursera Deep Learning Specialization

AWARDS

- Recognized by the 1A term's **Dean's Honour List**
- University of Waterloo **Engineering Entrance Scholarship** & **President's Scholarship of Distinction**
- **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
- Trained and competed at the highest level in Canada as a soccer goalkeeper.
- **Toronto FC** & **Ontario Provincial Soccer Team** – Goalkeeper for Team Ontario and Toronto FC Academy