



Skills & Technologies

Python

C/C++

Java

Objective C

Matlab

Swift

C#

PyTorch

Unity3D

Git

GCP Compute

UNIX

Cuda

Work Experience

Software Developer Intern | BlackBerry Messenger

May 2018 – August 2018

- Accelerated BBM iOS performance through efficient **reactive** programming in **Objective C + Swift** and code refactoring on the architectural level: moving from MVC and MVVM to the more dynamic **Clean** architecture
- Integrated Plenty Tracking throughout the application, collecting **usage analytics** on 2 million daily users
- Introduced **picture-in-picture** YouTube playback in BBM conversations and messages
- Modernized the user experience with the complete redesign of the client-facing Channels & Official Accounts features, from the core level to the view-controller level
- Increased the unit test and integration test coverage on the Jenkins CI for the iOS codebase

Projects

Image Inpainting Model

- A neural network capable of filling in **irregular holes** in an image through a **single forward pass** (<https://youtu.be/laq6mqo0r-E>), making it fast and flexible enough for real world applications
- Constructed **PyTorch** model based on U-Net encoder-decoder and the **partial convolutional** layers detailed in Liu, G., Reda, F.A., Shih, K.J. (2018) "Image Inpainting for Irregular Holes Using Partial Convolutions"
- Leveraged Google Cloud Compute Cuda GPU's for training and fine-tuning the model
- Currently working on compressing the weights for potential integration on mobile platforms and in-place batch-normalization for decreased GPU VRAM usage during training

Infinity Runner

- An infinite 3D platformer game for both iOS and Android platforms (<https://youtu.be/rk8PiT0AI7s>), developed in **Unity3D (C#)** with the use of prefab models created in **Blender**
- Utilized built-in gradient randomization and procedural generation for gameplay mechanics

Extracurricular Work

Research Assistant | Brock University

June 2016 – June 2017

- Increased precision of experimental data by **40%** through frequency optimization performed with **NumPy** fast fourier transforms (experiments conducted in granular materials lab)
- Improved the efficiency of experiments by automating data collection through **PySerial** interface

Embedded Software Developer | Waterloo

October 2017 – April 2018

- Designed and implemented the data-transfer architecture for the sensor systems onboard the Hyperloop pod, specifically using **CAN-BUS** and **I2C** protocols
- Contributed to the redesign of the Hyperloop pod as part of Waterloo's new phase, documenting various failure scenarios for the embedded systems and the corresponding response

Education Bachelor of Software Engineering | University of Waterloo (3.95 GPA)

Interests

Rowing (Crew)

Basketball

Weight Training

Graphic Design

Cool Hardware