Bob Wei

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Skills & Technologies

Python	C/C++	Java	Objective C	Matlab	Swift	C#
PyTorch	Unity3D	SQL	GCP Compute	UNIX	Cuda	Git

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), achieving inference times of **3-4 seconds** on various images
- 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/rk8PiT0Al7s), 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 | *Waterloop* 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 Waterloop'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