Julian Pettit

3B Mechatronics Engineering
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SKILLS

OpenCV ● Object Oriented Programming ● Scripting ● Full Stack ● Machine Learning ● Android Cloud Services ● .NET Framework ● IOT ● Hardware Integration ● Circuit Design ● Technical Writing

WORK EXPERIENCE

Software Engineering Consultant, IBM *May 2018 – Aug 2018*

- Developed and integrated three unique algorithms for seamlessly removing and replacing furniture from images of rooms using the OpenCV library in C++.
- Created scripts to recognize and tag key image features with a 99% success rate for the furniture application using a self-trained TensorFlow data model in Python.
- Designed a lightweight barcode recognition and scanning system for aerial warehouse drones using a Haar cascade model in C++.
- Produced a warehouse inventory management Android application using Bluetooth beacon tracking.

Product Development Engineering, UTEX Scientific *Sep 2017 – Dec 2017*

- Integrated ultrasonic pulser modules and motion controllers for a nondestructive testing system, meeting the precision specifications of 4 major jet engine manufacturers.
- Created electrical panels for scan-tanks, with rectification, load regulation, and voltage amplification.
- Simulated ultrasonic scans and automated 25% of the scanning process with C# and Python scripts.

Software Developer, Virtek Vision International *Jan 2017 – Apr 2017*

- Improved the point targeting speed of industrial laser projection devices by 70% and doubled the first scan success rate using the OpenCV library in C++.
- Created unit and integration test suites to increase overall coverage by 150% using NUnit.

Application Developer, Innovasium Digital *Apr 2016 – Aug 2016*

- Created customized web applications to improve workflow and communication for finance companies using the React and Redux JavaScript libraries.
- Connected application inputs and calls to a PostgresSQL database using Ruby on Rails.

PROJECTS

Facial Authentication Application *Mar 2018 – Aug 2018*

- Trained a fast facial detection and image classification model from 200 pictures using OpenCV.
- Developed an Android application to control an Arduino door lock over Bluetooth using the facial detection and a PIN as authentication methods.
- Improving the application to support specific facial recognition using Tensorflow in Python.

Real-Time Memory Allocation *May 2017 – Jun 2017*

- Developed a memory allocation algorithm to operate in constant time on an ARM processor using C.
- Improved algorithm runtime by 100ms by redesigning code to use lookup tables and avoid the use of loops and built-in math functions.

EDUCATION

University of Waterloo, Waterloo, Ontario, Canada *Sep 2015 – Apr 2020*

- BASc in Mechatronics Engineering, President's Scholarship