WALEED AHMED

w29ahmed@edu.uwaterloo.ca | 647-708-7272 | linkedin.com/in/waleed-a | github.com/w29ahmed

SKILLS

C++ | C# | Python | JavaScript | HTML/CSS | Java | MATLAB

OpenCV | ROS | .NET | Git | Bash | Linux | Arduino | VHDL

EXPERIENCE

Software Engineering Intern

Synaptive Medical

Sep 2018 – Present | Toronto, ON

- Implemented a colour contrast enhancement algorithm in **C#** using three dimensional look up tables in order to improve visibility of biological tissue during surgical procedures
- Created a front-end interface using **JavaScript**, **HTML**, and **CSS** for testing/diagnostics of colour correction algorithms through an in-house web API paired with a **foreign function interface (FFI)** between **Visual C++** and **C#**
- Refactored various **dynamically linked libraries** for colour corrections into a single library for more efficient and organized software architecture

Industrial Imaging Software Developer

P&P Optica

Jan 2018 – Apr 2018 | Waterloo, ON

- Developed software for industrial imaging applications on **Linux** machines with **Git** version control in an **Agile** environment
- Implemented image correction algorithms and post-processing for industrial cameras in **Python** using **Numpy**, **OpenCV**, and **Matplotlib**
- Refactored data handling modules for efficient file input/output and wrote unit tests for them in **Python** using **Pytest**
- Refactored camera control modules in **C/C++** that use the **Camera Link** serial protocol to interface with the camera for control purposes
- Documented software design decisions and a troubleshooting guide to efficiently debug issues pertaining to image acquisition

ACTIVITIES

Software Team Member

UW Robotics

Apr 2018 – Current

- Developed software architecture using a **Linux** based framework: **ROS** (Robot Operating System), for efficient package management and communication between **machine vision** modules in **C++**
- Used **CUDA**, NVIDEA's parallel computing platform for GPU optimization of **OpenCV** code in **C++** for lane and object detection

Engineering Laboratories & Projects

University of Waterloo

Apr 2018 – Current

- ECE 108: Analyzed common casino games with set logic/probability and modeled a social network using a relational database in **C++**
- ECE 124: Programmed FPGAs in **VHDL** using digital logic

PROJECTS

Arduino Jukebox

github.com/w29ahmed/Arduino-JukeBox

- Programmed in **C++** to use analog input from a variable resistor to cycle through a list of songs displayed on a 16x2 LCD screen
- Songs are hard coded frequency patterns digitally sent to a piezoelectric speaker

Toronto Raptors Image Classifier

github.com/w29ahmed/toronto-raptors-classifier

- Utilized transfer learning on Google's Inception v3 image classifier to identify players on the Toronto Raptors using **TensorFlow**, an open source **machine learning** framework in **Python**

Arduino Voltmeter

github.com/w29ahmed/Arduino-Voltmeter

- Programmed in **C++** to utilize a voltage divider circuit in order to read voltages up to 500 V (±1.4% error) and display it on a 16x2 LCD screen

Android Notes App

github.com/w29ahmed/Notes_App

- Simple but efficient note taking app for Android API levels 15 and above constructed using **Java**, **XML**, and a **SQLite Database**

EDUCATION

B.ASc Computer Engineering

University of Waterloo

2017-2022

Online Coursework

- Stanford University: Machine Learning with **MATLAB** by Andrew Ng
- Machine Learning A-Z: Hands-On **Python** & R In Data Science

INTERESTS

Machine Vision | Image Processing | Machine Learning | Self-teaching | Basketball | Toronto Raptors