Hayden Goodfellow

613-328-1538
HaydenGoodfellow3@outlook.com

Languages: C++, C, C#, Python, Verilog, Assembly (ARMv7-A)

Technologies: Git, PostgreSQL, Boost, LibCurl, OpenMP, OpenCV, Microsoft Office, LaTeX

Education

Bachelor of Applied Science in Computer Engineering - University of Toronto

· Minors in Engineering Business and Machine Learning — Graduation Expected 2022

Work Experience

Software Developer - Amnesia Escape Games — Summer 2019

· Developed software to monitor and control over 30 devices such as RFID readers, actuators, lights, and temperature sensors which were connected to 11 Arduino Nano controllers

· Created, in C++, a master controller for the entire system which ran on a Raspberry Pi 3B+ and communicated using an RS-485 half-duplex bus & socket connections

· Used OpenCV in Python to create a facial detection program which detected when 2 faces were in front of 2 separate monitors and displayed each user's face on the opposite monitor

· Used PostgreSQL in C++ to log sensor and game state data for testing and balance purposes

Kitchen Staff & Delivery Driver - Pizza Pizza — 2013 - 2017

· Always provided exceptional service resulting in 0 customer complaints in over 4 years

District Referee - Ontario Soccer Association — 2012 - 2018

· Worked individually or in a small team to uphold the laws of the game and ensure safety for 22 players plus parents, spectators, and coaches

Projects

Geographic Information System - University of Toronto — 2019 - 2020

· Developed, using C++ along with Cairo Graphics and GTK+, a full-scale GIS application tailored to users with vision impairments, such as colour blindness

· Retrieved and displayed real-time weather and transportation information using LibCurl

· Utilized A* search algorithm to quickly and efficiently find directions in a fraction of a second

· Created an algorithm which uses dynamic programming to solve traveling salesman problems with pickup, delivery, and ride-time constraints. Uses Tabu Search to optimize the solutions

Autonomous Robot - Space Engineering & Exploration Kompetition (SEEK) — 2019

· Developed, using C, a manual Bluetooth controller as well as an autonomous AI for an RC rover that I designed which was capable of navigating quickly and safely around obstacles and inclines

· Optimized the path-finding algorithm to quickly and accurately complete the objectives of the competition and ultimately finished in 2nd place out of over 30 groups

Social Isolation Simulator - University of Toronto — 2020

· Created, using C on a DE1-SoC, a simulator showing the effects of social isolation on a pandemic

· Created a custom VGA controller which utilizes page flipping for smooth animations

Othello Game - University of Toronto — 2018

· Created an app for the game Othello with the option to play with 2 players or against an AI

· Used alpha-beta pruning in C to create an AI capable of making an optimal move quickly