Brian Tran

3B Computer Engineering

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// SKILLS

Languages
C++, C#, JavaScript, Python, Java, SQL, MATLAB

Libraries
STL, Boost, Unreal Engine 4, AirSim, OpenCV, ROS, .NET, three.js

Tools
Bash, Git, Visual Studio, WebRTC, WebSockets

// EDUCATION

University of Waterloo
Computer Engineering, 2020

Algorithms and Data Structures
Operating Systems
Digital Hardware Systems
Embedded Systems
Computer Networks

// AWARDS

Best Security Hack, EngHack 2018
Dean's Honours List
President's Scholarship of Distinction
Top Ontario Scholar, DPCDSB
3rd Place, Gamemaker Contest
Ontario Volunteer Service Award

// LEADERSHIP

Waterloo Orientation Week Leader
Technology Lead for CUTC 2017

// INTERESTS

Simulation Development
Game Development
Robotics
Bouldering
Singing

// EXPERIENCE

Simulation Developer, *Coursera Autonomous Driving Specialization*
September 2018 - Present

- Finalizing simulation environments and developing course materials

Undergraduate Research Assistant, *University of Waterloo*
September 2018 - Present

- Working on features for autonomous vehicle simulation using Unreal Engine 4
- Improving accuracy and performance of time-to-collision metrics

Autonomous Vehicle Simulation Developer, *University of Waterloo*
May 2018 - August 2018

- Built up a simulation environment for AV testing using Unreal Engine 4 and ROS
- Simulated the output of the car's LIDAR sensor and object detection module
- Prepared the simulator for release to Waterloo's self-driving car research team
- Designed and implemented a framework for calculating, monitoring, and visualizing metrics, such as time-to-collision

Software Developer R&D, *National Instruments*
September 2017 - December 2017

- Developed features for Multisim Live, a web app for circuit simulation
- Managed a remote test probe in real-time using WebRTC data channels
- Improved time to fetch resources using caches to increase responsiveness

Full-Stack Web Developer, *VIQ Solutions*
January 2017 - April 2017

- Built a RESTful Web API to control video recording software from a mobile app
- Created an MPEG-DASH streaming video player to reduce bandwidth costs
- Demonstrated products to clients to help secure over $400k in funding

Web Developer, *Intellisoft Development Inc.*
May 2016 - August 2016

- Rebuilt a college's course search tool with caching to return results over 2x as fast
- Stored and analyzed page visit data to recommend popular related courses to users

// PROJECTS

Autonomous Driving, *UW Robot Racing Design Team*

- Developed robust lane detection for an autonomous racing robot (IARRC 2018)
- Prototyped image processing algorithms in MATLAB and implemented in C++ using OpenCV running on ROS
- Researched current CV techniques to account for lighting variations on the road

threeRTC, *3D browser game with real-time communication*

- Developed a 3D game in the browser that uses a phone as a motion controller
- Communicated real-time phone gyroscope data to the browser using WebRTC

WAV Audio Player, *Embedded audio player on an Altera FPGA*

- Worked with buffers in C to play audio files from an SD card with minimal distortion
- Implemented features such as fast-forward, rewind, play/pause, and skip