chayceross108@gmail.com | +1-778-877-8143 | chayce-ross

Chayce Ross

Engineering Physics UBC

I. Engineering Physics UBC - KMILOT Scholarship

- $400,000 Full Scholarship with less than 2% acceptance rate for UBC's most competitive engineering major.

II. Experience

University of British Columbia - Capstone . . . . . **Aug 2023 – Present**
Biomedical Augmented Reality Development Vancouver, BC

- Developing Augmented Reality Application for Meta Quest 3 in Unity and C# to guide neurologists performing spinal injections.
- Developed compute shaders to dynamically render 3D meshes from CT Scan voxels with Marching Cubes.
- Collaborated over 4 months with stakeholders to design system applicable for surgical settings.
- Built Python Django HTTP server to handle 3D transformations and optimizers using SciPy and Numpy.
- Developed cross platform DICOM parser in C#, supporting extraction of images into Unity textures.

ENWAVE Corporation . . . . . **Jan 2021 – May 2021**
Process Automation Intern Delta, BC

- Developed Python scripts to automate operations workflows on company database
- Utilized Pandas to transform and clean company data, enabling real-time business intelligence reporting
- Developed a ReactJS dashboard to visualize key peformance indices, used daily across full operations team

UBC Unmanned Aircraft Systems . . . . . **Aug 2020 – Aug 2022**
Firmware Engineer Vancouver, BC

- Successfully developed payload delivery system to deliver 5lb rover from stationary drone at 50ft
- Implemented PID control system in C to maintain constant speed for delivery
- Implemented real-time dashboard for ROS, facilitating quicker debugging and system optimization
- Collaborated with a team of five, leveraging Git for version control and Jira for project management

III. Projects

FarmJS
NextJS, Docker, SQLite, Python (OpenCV), gRPC, Github Actions

- Developing a NextJS application with Tailwind CSS and SQLite to streamline tobacco leaf curing by scanning barcodes and displaying real-time production data for farmers
- Integrated a Python server for barcode scanning with OpenCV
- Implemented Multi-Tenant Authentication with Role-Based Access Control with JWT, in combination with Google OAuth for admin logins.
- Deployed using Docker Compose, leveraging Traefik for SSL termination and gRPC for inter-container communication

Self Driving Vehicle in ROS
Python, OpenCV, Tensorflow, ROS

- Developed a self driving car to navigate a simulated street and read street signs as part of a student competition
- Trained CNN to recognize street signs using TensorFlow and developed computer vision self driving algorithm with OpenCV

Line Follower Robot Competition
C++, CAD, PCB Design, Soldering, Control Systems

- Built a tape following car from scratch, with a team of 4, placing 3rd of 21 teams
- Implemented driving logic in C++ using a state machine and PID control, and feedback from infrared sensors.
- Designed chassis in OnShape, and fabricated parts with laser cutting, 3D printing and CNC milling.