

# NIGEL CHARLESTON

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## KEY SKILLS

C++ (2020) | C | C# | Python | JavaScript | Git | Docker | Unity | Multi-thread programming | CMake | Bash | Linux  
Simultaneous Localization And Mapping (SLAM) | Virtual Reality (VR) | Direct Signal Processor (DSP) | Agile | Java

## WORK EXPERIENCE

### Qualcomm – XR Software Team, San Diego, CA

August 2021 – November 2024

#### XR (Extended Reality) Software Engineer

- Collaborated with XR systems team to implement 6DOF (SLAM) camera tracking features for XR clients, including depth from stereo images, multi-level mipmap tracking, and pose prediction using C, C++ on a DSP co-processor.
- Headed project to capture high frequency pose data from wireless VR controllers and integrated VR playback support within multi-threaded canned playback tooling; adhered to real time key performance metrics.
- Re-implemented data-logging mechanism at the android application layer, allowing users to record high bandwidth camera and sensor data from an XR device in real time for power, performance, and sanity testing.
- Designed and integrated network API to serialize user position data; improved application startup times by ~20% through caching mapped coordinates to formally visited locations.
- Optimized algorithms within XR software stack by way of support across many teams; drove power savings of ~7mW with sensor batching algorithm, minimized file system access calls, and improved tracking performance.

### University of Michigan –

#### Electrical Engineering and Computer Science Department, Ann Arbor, MI

September 2019 – June 2021

#### Instructor Aid for EECS 281 – Data Structures and Algorithms

- Facilitated and taught weekly discussion sections to cohorts of 20+ students covering C++ programming concepts, data structures, and algorithms in order to strengthen their understanding of lecture material.
- Created midterm and final exam questions to challenge 800+ students into using their class knowledge to solve open-ended programming problems.

### Qualcomm – Camera Software Team, Redford, MI

May 2020 – July 2020

#### Software Engineering Intern

- Developed a data visualization tool with Python, HTML, and JavaScript that can parse and analyze core dumps, enabling 4 customer engineers to troubleshoot errors triggered within Qualcomm's camera software.
- Revised tool design and functionality to satisfy the customer engineers' requirements; wrote object oriented interface for inspecting each layer of the camera pipeline, including important data fields and error messages.
- Utilized test driven development to validate the tool for well-formatted input data and correctness of output.

### Visa Inc. – Clearing and Settlement Department (CAS), Austin, TX

May 2019 – August 2019

#### Software Engineering Intern

- Designed and built a full-stack web application for use by account managers and CAS developers, allowing them to search for, and generate reports on, failed credit card transactions.
- Implemented front-end UI search portal using JavaScript and the Angular framework, and back-end transaction database storage with Golang API and MongoDB.
- Automated the team's manual process of sending email reports regarding unreconciled transactions to account managers; reduced the time needed to generate summaries from ~72 hours to less than 24 hours.

## EDUCATION

### University of Michigan, Ann Arbor, MI

June 2016 – April 2021

#### Bachelor of Science (BS) – Computer Science

**Electives:** Computer Security | Robotics | GPU Programming | Operating Systems | Game Development