

FEILAN JIANG

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Languages C++, C, Python, Java, HTML & CSS, JavaScript, TypeScript
Technologies PCL, OpenCV, Protobuf, STL, Matplotlib, Numpy, Git, SVN, Linux, GDB, Valgrind, gcovr
Education BAsC Mechatronics Engineering, University of Waterloo (2016-2021)

WORK EXPERIENCE

ADAS Software Developer | BlackBerry QNX

5/2018-8/2018

- Built a C++ vehicle object detector for QNX's ADAS (Advanced Driver-Assistance System) platform by filtering, grouping, and classifying LIDAR sensor data using PCL's filtering and segmentation algorithms
- Enhanced the ADAS platform's C++ LIDAR interface by adding the ability to retrieve 360° panoramic point clouds
- Ensured the timely delivery of upcoming product releases, fixing critical sensor data-acquisition bugs by resolving thread-synchronization issues in the QNX sensor library

Power Management Developer | Ford Motor Company

9/2017-12/2017

- Implemented a C++ inter-process messaging system that uses protocol buffers to relay power commands and statistics
- Ensured software maintainability by refactoring code to MISRA standards using SonarQube's static analysis tool, resulting in a 10x decrease in the number of software design violations
- Reduced software verification time by creating CUnit unit tests and automating the generation of gcovr code coverage reports, allowing one to determine the entire codebase's code coverage within minutes

Software Developer | Nanometrics Seismological

1/2017-4/2017

- Standardized the company's SD card verification process by developing a C-based lifespan estimation tool that fetches any supported card's SMART data in order to determine read/write count, remaining lifespan, and other metrics
- Streamlined the build process by using Autotools to automatically cross-compile internal software for multiple ARM architectures
- Expanded the company's internal tooling repository, adding utilities such as logstreamers, firewalls, and log viewers by writing BitBake build recipes for each tool

PROJECTS

IoT Smart Blinds

Android, Firebase, wear-levelling algorithms

- Developing a low-cost blinds controller that enables remote-control and scheduling capabilities through a mobile or web app
- Wrote robust Arduino code for stepper motor control, handling HTTP requests, and storing motor position during power outages
- Implemented an EEPROM wear-leveling algorithm for storing the stepper's position, preventing premature wear of the EEPROM storage and increasing its lifespan by a factor of 1024

Fog-Screen Hologram

Socket.IO, ATmega328P timers & interrupts, finite-state machines

- Prototyped a low-cost hologram that uses a rotating fog screen to display 3D content for product design, shopping, and entertainment purposes
- Implemented a head-tracking algorithm that allows the hologram to constantly face the viewer and create a 3D visual effect by adjusting the model's POV
- Developed a web app that interfaces with the hologram to display 3D models and animations provided by the SketchFab API