

# Alex Klemenchuk — Embedded Developer

Seattle, Washington, United States

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*Looking to work on challenging physical devices with a keen interest in improving software quality at all levels through collaboration. I enjoy building embedded gadgets in my spare time.*

## SKILLS

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- Languages:
  - High Familiarity: C, C++, Python, Bash
  - Some Experience: Java, Rust, JavaScript
- Microcontrollers: Cortex M33 & A53, ESP32/ESP8266, AVR
- Protocols: UART, I2C, SPI, WiFi, Bluetooth.
- OS: FreeRTOS, VxWorks, Yocto, Linux.
- Test Equipment: Oscilloscopes, Multimeters, Logic Analyzers, Protocol Analyzers

## EXPERIENCE

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### Embedded Software Engineer II

Amazon

Seattle, Washington, USA

April 2020 - September 2022

Halo Devices (7 months)

- Developed customer facing customization features and UI on an ARM M33-based fitness smartwatch on FreeRTOS in C.
- Triageed and resolved stability and UI issues, improved metrics and diagnostics around OTA state.
- Mentored intern on developing a framework to measure RTOS performance (task latency, CPU utilization, queue events) and discover regressions.
- Rearchitected build workflows, toolchain handling and IDE support, and rewrote build/flash/debug/test developer documentation.

Prime Air (2 yrs 6 months)

- Contributed to internal software development kit (C++, Python) which is used for the development and deployment of safety-critical algorithms, and simulation for avionics platforms on VxWorks and Linux systems.
- Work included optimizing simulation performance/stability through rearchitecting C++ and Python code generation, assisting with the maintenance of a Yocto distribution, and developing a framework to replay previous execution data on new software using developer-written functions to convert between representations of messages.
- Helped evaluate OSes and design a new high level application architecture with a focus on simplicity and determinism.

### Embedded Display Software Engineer

Qualcomm Canada

Markham, Ontario, Canada

October 2019 - March 2020

- Enabling, and verifying hardware features on Windows display drivers for Qualcomm ARM SoCs using protocol analyzers in C and C++.
- Work included configuring DisplayPort hardware to support unique display configurations, overriding display settings, allowing several fail-safe fallbacks when a monitor is not detected, and enabling synchronized userspace-to-hardware DisplayPort interfaces.
- Communicating with external clients ensuring the features delivered met expectations and were understood when delivered.

### Firmware Developer Co-Op

Cognitive Systems

Waterloo, Ontario, Canada

May 2017 - December 2017

- Created optimized software implementation of WiFi 802.11g PHY layer transmitter in C on a constrained custom vector processor with test suite involving remotely instrumenting spectrum analyzers, and Matlab scripts.
- Created Linux kernel driver patch and improved speed and sensitivity of LTE cell detector by tweaking a series of convolution-based synchronization signal detection algorithms.

### Open Source Project Work Course (ReviewBoard.org)

Beanbag, Inc.

Mississauga, Ontario

September 2018 - December 2018

- Developed plugins, feature additions and bug fixes to the web back-end (Python, Django) and front-end (Backbone.js) with consistent code style, documentation, and test suite.
- Maintained consistent code quality through collaborative code review, and produced demo videos of features.

## EDUCATION

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### University of Toronto Mississauga

HBSc - With High Distinction - Computer Science Specialist

GPA: 85.6/100

Mississauga, Ontario, Canada

June 2019