

# Ashley Knutsen

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AshleyKnutsen.com

## **BRINC Drones - Embedded Software, Senior Embedded Engineer**

May 2023 – Present

- Work with embedded engineers to automate reproduction of critical bugs in order to root cause
- Champion driving the quality of life for developers through tools and documentation
- Created Python test environment and tools to assess 200 regression test runs per day
- Drove CI/CD refactor to deliver an efficient release process with reproducible builds
- Organized maintenance and distribution of hardware used for testing
- Coordinated tests for software releases daily leading up to the launch of Lemur 2
- Owned developing deployable Python infrastructure for consistency across teams
- Managed test data with AWS tools such as EC2, DynamoDB, S3, and Lambda
- Worked with test team to design a test framework that would enable rapid test creation
- Implemented test framework as designed in Python with PySimpleGui
- Test framework automatically uploads all logs and results to S3 and DynamoDB
- Delivered pack-out station to track contents of each shipment of new Responder drones

## **Sonos - Player Control API, Embedded Software Engineer II**

May 2021 – March 2023

- Added features to the Python script that generates the C++ Control API code on all products
- Debugged a variety of runtime errors occurring on the embedded Linux based speakers
- Provided documentation that codified team best practices for our on-call rotation
- Created a GitHub Actions workflow to provide a clang-format label for GitHub reviews

## **Amazon - Halo Firmware, Embedded Firmware Engineer II**

May 2021 – March 2023

- Contributed to firmware development in C for the Alexa Loop, which is based on FreeRTOS
- Added metrics to the Alexa Loop which provided insight into quality of user experience
- Developed testing strategy for Alexa Loop Over the Air (OTA) update stress test
- Deployed OTA update test, which ran more than 3,000 times without manual intervention
- Tests caught multiple issues and generated data that confirmed new metrics were accurate
- Worked with stakeholders to plan and develop a Python based test environment
- Delivered environment that included pytest plugins for devices used in testing the Halo View
- Wrote Python review checklist for the Halo Firmware organization to ensure quality at scale

## **Microsoft - Windows Core Firmware, Firmware Engineer**

May 2021 – March 2023

- Contributed to the firmware release for Surface Pro X as well as the iMX8
- Wrote a firmware driver that extracts memory page table as it appears in DXE and SMM
- Used the extracted memory map to validate memory protections introduced by Intel
- Worked towards open sourcing the Python build system we developed to the community
- Added documentation, unit tests, and CI/CD infrastructure as a part of the open source release

## **Facebook - BLOB Storage, Software Engineer Intern**

May 2021 – March 2023

- Added the ability for a server to restart from a cache file, reducing startup time by 99%
- Created the first deployable test system for the distributed photo storage service
- This allows distributed components to be set to behave unexpectedly, testing resiliency

## **Cougaar Software - Robotics R&D, Software Engineer Intern**

May 2021 – March 2023

- Built a distributed subsumption-based robotics framework in Java
- Designed and implemented a Java / Arduino communication bridge over serial
- Prototyped and delivered operational robot proof of concept with four connected water tanks
- Tanks each maintain their desired water level when a leak is introduced
- Robot was used as proof of concept to secure a contract with a gas company
- Delivered Angular.JS based dashboard for monitoring health of the robotics network

## **University of Maryland, Baltimore County - B.S. Computer Science**

May 2021 – March 2023

- Founding member, treasurer, lead programmer, mentor for Retriever Robotics VEX Team
- Graduated with a 3.3 GPA