JOHN RICHARDS

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EDUCATION

University of Maryland, College Park | Clark School of Engineering **May 2021**

B.S., Computer Engineering **Cumulative GPA: 3.9**

- Courses: Operating Systems, Foundations of Machine Learning, Computer Architecture, Compilers, Algorithms, Digital Logic Design, Computer Architecture, Signals & System Theory, and Analog and Digital Electronics

WORK EXPERIENCE

AST SpaceMobile | Associate Flight Software Engineer **June 2021 – Present**

- Implemented feature updates for low-level and application layer software designed to run on an assortment of ARM Cortex-M7 microcontrollers.
- Performed board bring-up, test procedures, and hardware maintenance & troubleshooting in an ESD-controlled lab setting utilizing industry-standard tools and components.

Research Support Instruments | Software Engineering Intern **May 2019 – Jan 2021**

- Implemented and tested the flight software for an onboard instrumentation package designed for consumer-grade quadcopters.
- Utilized an Arduino Nano and an embedded microcontroller to transfer data remotely with a ground station, allowing for scientifically significant data collection with a ±3% error threshold.
- Implemented a custom desktop application to enhance user interactions with the instrument package in Python.

UMD Department of Computer Science | Teaching Assistant **Jan 2020 – Dec 2020**

- Tutored students in office hours on OCaml, Ruby, and general programming language concepts.
- Assisted in the creation of course materials alongside 30 other undergraduate teaching assistants for CMSC330.

Salem Art Association | Logistics Intern **Jun 2018 – Jul 2018**

- Volunteer coordinator of thirty people collecting trash, recycling, and compost over the course of a three-day festival hosting 30,000 people.
- Compiled a formal report on the establishment of a paperless ticketing system at each of the entrances to reduce wait times.

National Security Agency | Software Engineering Intern **Sep 2016 – Dec 2016**

- Assisted a team of six people to provide weekly updates to a Java software library and its documentation.
- Attended weekly meetings with manager to discuss bug reports, new tasks, and progress on project.

TECHNICAL PROJECTS

Modular Synthesizer | Design Lead **June 2019 – Present**

- Designed and implemented an STM32 (Cortex-M7) based audio synthesis algorithm utilizing open-source hardware and including fully functional hardware-level drivers.
- Created a bill of materials for and fabricated a number of independent modules using open-source documentation.
- Designed PCBs for an audio recording device and a 2-channel analog amplifier in Autodesk Eagle.

University of Maryland Keystone | Project Lead **Aug 2017 – Dec 2017**

- Designed an autonomous rover for a fire suppression mission that moved debris and extinguished fire
- Utilized the Arduino microcontroller for prototyping and controlling navigation and manipulation.
- Presented a formal design report with visual aids to thirty-person audience.

LEADERSHIP

Virtus at University of Maryland | Mentor **Aug 2017 – May 2018**

- Participate in seminars on pre-professional development and engineering design

Cyber Patriot | Team Leader **Aug 2015 – May 2017**

- Searched for and remedied vulnerabilities in a virtual Windows environment
- Met weekly for practice and competed in the Maryland regional Platinum division

TECHNICAL SKILLS

- Git
- C
- C#
- C++
- Arduino
- Python
- MATLAB
- LaTeX
- Linux
- OCaml
- Ruby