

JOHN RICHARDS

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EDUCATION

University of Maryland, College Park | Clark School of Engineering

B.S., Computer Engineering

Expected: May 2021

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

UMD Department of Computer Science | Teaching Assistant

Jan 2020 – Present

- 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.

Research Support Instruments | Software Engineering Intern

May 2019 – Sept 2020

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

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.

Winquest Engineering Corporation | Cyber Security Intern

Jun 2016 – Aug 2016

- Achieved a 60% increase in successful security tests by designing a program to teach good security practices.
- Assisted comprehensive security testing of commercial networks utilizing Linux and associated tools.
- Researched the theory and methods behind penetration testing and cybersecurity.

TECHNICAL PROJECTS

Modular Synthesizer | Design Lead

June 2019 – Present

- Created a bill of materials for and fabricated a number of independent modules using open-source documentation.
- Designed PCBs for an audio sampler 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.

Procedural Maze Project | Programing Lead

Aug 2017 – Dec 2017

- Used cellular automata and Perlin noise in the Unity3D engine to generate random patterns and mazes.

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

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|--------|-----------|----------|
| • Java | • Arduino | • Racket |
| • C | • Python | • Linux |
| • C# | • MATLAB | • OCaml |
| • C++ | • LaTeX | • Ruby |

