Christopher Rector

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Education

Old Dominion University
Master of Science, Computer Science — May 2022

State University of New York at Buffalo — **Magna Cum Laude**
Bachelor of Science, Mechanical Engineering — May 2017
Bachelor of Arts, Mathematics — May 2017

Work Experience

United States Navy — **2017 - Present**

- Acted in roles as both a diver and medical technician, specializing in the treatment of diving disorders
- Performed at a supervisory level to direct or participate in daily tasks, mission planning, and professional development

SUNY Buffalo - Student Assistant — **2016 - 2017**

- Created a curriculum for a class designed for mechanical engineering students, in which they were introduced to several topics such as data acquisition, calibration, and control
- Tasks including writing usage manuals for sensors and actuators to be used with Arduino microcontrollers, modeling, machining adapters for the equipment, and designing lab experiments

Skills

- Languages: C/C++, Python, Java, MATLAB, R, LaTeX, Markdown, HTML, BASH
- Software: Solidworks, Creo Parametric, AutoCAD, ANSYS, Git
- Technical: Machining, woodworking, prototyping

Projects

Medical Ventilator — **2020**

- Developed the printed circuit board (PCB) for a medical ventilator operated by a microcontroller
- Device was approved for patent, with the data published in the Critical Care Explorations journal

ECG and Pulse Oximeter Device — **2019 - 2020**

- Developed a PCB for a combined ECG and pulse oximeter device
- Device was used to study hemodynamics and considered for use in human clinical trials

Closed Loop Irrigation System — **2016 - 2017**

- Capstone project which investigated the use of closed loop irrigation systems in agriculture
- Created a system which autonomously monitored and controlled moisture content in soil

Metamaterials Research — **2016 - 2017**

- Participated in the development of a class of acoustic metamaterials designed to attenuate vibrations
- Developed mathematical framework to optimize these materials to noise control applications

Awards

1st Place Team – Navy-Wide Academic Research Comptetition — **2020**
- Machine Learning for Hemodynamic Prediction

2nd Place Team – NMCP Academic Research Competition — **2020**
- Monitor Development Substudy

Publications

Cole, J. H., Hughey, S. B., Booth, G. J., Rector, C. H. (2020). A Novel Low-Cost Ventilator for Use in a Worldwide Pandemic: The Portsmouth Ventilator. Critical Care Explorations, Vol 2 (Issue 12), pg 292. https://journals.lww.com/ccejournal