Reilly Burhanna

rcb135@case.edu | Cleveland, OH | 609-741-9158

EDUCATION

Case Western Reserve University (CWRU) **Cleveland, OH**
Candidate for PhD in Electrical Engineering 06/2023 - Present
Write note about concentration or something

New Jersey Institute of Technology (NJIT) **Newark, NJ**
BS in Electrical Engineering 09/2019 - 05/2023
Concentration in Control Systems - GPA: 3.82

EXPERIENCE

MetroHealth / CWRU **Cleveland, OH**
Graduate Researcher 06/2023 - Present
- Focused on developing an efficient closed-loop charging system for biomedical implants by utilizing control techniques based on important sensor feedback from the implant and outside the body.
- Developing new and existing technologies for MetroHealth's Networked Neuroprosthesis (NNP) implant.
- Completing coursework and teaching requirements for CWRU's PhD in Electrical Engineering program.

Navmar Applied Sciences Corporation **Ivybrook, PA**
Electrical Engineering Intern 05/2022 - 8/2022
- Tested and corrected the serial and network ports of an unmanned aerial vehicle with the help of an Arduino to ensure proper communication of all electrical components of the system.
- Utilized AutoCAD to design drawings of the plane's electrical wiring and revise them when necessary.
- Assisted in the installation of the plane's antennas and rf cables and testing of the system with the mobile or ground control station.

Colorado Engineering Inc. **Colorado Springs CO**
Electrical Engineering Intern 06/2021 - 8/2021
- Redesigned and improved a 12-layer printed circuit board (PCB) utilizing Altium to reduce material usage while maintaining the essential design of the antenna array on the board.
- Shadowed and helped in the testing and troubleshooting of a design to wirelessly transmit gigabytes per second of data seamlessly over 60ft using a high frequency signal.
- Debugged and added to a website for the organization of board designs using PHP and fixed a parts database to work with Digi-Key's new date system in python.

NJIT Solar Car Team **Newark, NJ**
Electrical Design Team 01/2020 - 5/2023
- Researching and developing a plan for the motor and motor controller for our team's 2nd generation solar car.
- Analyzed and identified the best performing parts while collaborating with teammates to make sure it is within design specifications.
- Communicating through email, Discord, Facebook, and Trello to keep track of task completion, prioritization, and manage goals.

Reselling Business **Cape May Court House, NJ**
Founder 11/2018 - Present
- Founded a profitable business reselling shoes and items while enhancing business skills such as market analysis and finance.
- Sourcing, analyzing, and purchasing items to resell on specific platforms based on factors like profit percentages and number of sales.
- Utilizing Ebay, StockX, and Goat along with self-learned knowledge of the product's history to determine investments.

Research Interests

Implantable medical devices, inductive Wireless Power Transfer (WPT) systems for implantable devices, and control systems design for WPT.

Presentations

APT Center i-Con Research Symposium **Cleveland, OH**
"Testing and Analysis for Improving Inductive Wireless Power Transfer" 05/2024

NJIT ECE Dept Senior Design Showcase **Newark, NJ**
"Solar Powered Security System" 04/2023

- Presentation for top 10 Senior Design Projects in Electrical and Computer Engineering Department at NJIT.

Honors and Awards

Swanger Graduate Research Fellowship 06/2023
Magna cum laude, New Jersey Institute of Technology 05/2023

Professional Service Activities

Review of Journal Papers for PhD Advisor, Steve Majerus 05/2023 – Present
Presentation to Middle School Teachers under NSF funded E-Stim for Educators Workshop 07/2024

Supporting Research Activities

MetroHealth Tetraplegia Management Clinic Cleveland, OH

- Bi-weekly meeting held by CWRU's Department of Physical Medicine and Rehabilitation at MetroHealth for evaluating solutions for individuals with spinal cord injury (SCI), ranging from clinical procedures to Neuroprosthetic research, including the NNP system.

Project management of Kickstart Coil for NNP implant system 04/2024 – Present

- Lead designer of a new system designed to hibernate and reawaken NNP implants in current research participants.

Construction of NNP Evaluation Boards 06/2024 – Present

- Building and testing of boards for testing flex PCBs of the different NNP implant modules.