John Dale

JohnDalePortfolio | Johnkdale02@gmail.com | (781) 915-9187 | Linkedin: Johndale02 | Github: Johndale02

EDUCATION

University of Massachusetts, Amherst **Amherst, MA**
Bachelor of Science in Computer Engineering | GPA: 3.72 **Sep 2020 - Dec 2024**

RELEVANT SKILLS

Programming: Python, C++, C, Bash, SQL, MATLAB **Electrical:** KiCad, Soldering, Batteries, Electronic test equipment
Technologies: Linux, ROS2, Selenium, Flask, Mosquitto **Industry Tools:** Git, Bitbucket, Jira, Confluence

EXPERIENCE

MITRE **McLean, VA**
Computer Engineering Intern **May 2023 – Aug 2023**

- Provided technical assistance in the deployment and evaluation of multiple standalone 5G network configurations
- Developed network load testing software for accessing uplink and downlink throughput during high device density scenarios; specifically utilized network namespaces for resource isolation to simulate 25 high traffic LANs
- Researched and implemented an open source 5G core solution for an indoor 5G femtocell
- Analyzed network performance metrics for configuring optimal RAN and core settings for different sponsor use cases

iRobot **Bedford, MA**
Systems Test Engineer Intern **Jan 2023 – May 2023**

- Supported the development, integration, and optimization of testing fixtures and methods; worked alongside engineers, developers, and product managers to meet fixture requirements for performance evaluations and marketing claims
- Utilized Qualisys, an infrared motion capture system, to reconstitute semi-annual key performance indicator tests of advanced Robot vacuum algorithms, improving test accuracy and time expenditure
- Programmed scripts in Python for automating the analysis of positional data collected in Qualisys for wall follow and obstacle avoidance algorithms, utilized in every iRobot autonomous vacuum
- Developed an API for exposing functionality of a motor controller communicating via a TCP socket
- Documented a Qualisys guide for internal use, providing required steps for calibration, test setup, and execution

National Science Foundation **Amherst, MA**
REU Drone Systems Research **May 2022 – Aug 2022**

- Engineered package delivery features for commercially available drones through hardware and software augmentation
- Developed embedded and server-side software in C++ and Python respectively for package delivery and testament
- Leveraged a REST API for sending package images from the drone to package recipients through SMS text messages

INDIVIDUAL PROJECTS

Blockchain Authorized Camera & Cloud Storage System, *Ongoing Senior Design Project* **July 2023 –Present**

- Digital camera design for protecting the integrity of photos and their metadata, including time and GPS position
- Utilizes encryption methods, TLS, blockchain, SQL, and Amazon S3 buckets in an end-to-end camera system

Hacking Radio-Frequency Identification Protocol, *HackUMass 1st Place Award* **Nov 2022**

- Reverse-engineered Wiegand protocol using bit-banging to perform malicous attacks on RFID access control systems
- Replicated a standard access control system using microcontrollers with software written in C++
- Created and presented an inexpensive, injectable, sniffing device capable of remote replay and DOS attacks
- Integrated a GUI to visualize live data coming across the interface and explain how the attacks work to professors

Electric Vehicle Design & Fabrication, *3-Seat Electric Couch* **June 2022 – Aug 2022**

- Researched, designed, and built electrical sub-systems for a wireless PS4 controlled multi-passenger vehicle
- Programmed electric steering and braking, dynamic throttle control, reverse, lights, and horn functionality in C++
- Utilized digital potentiometers, LL duplex shifters, MOSFET's, DC-DC buck converters, and 18650 battery cells

EXTRACURRICULAR ACTIVITIES & AWARDS

IEEE-HKN National Honor Society – *President* **Spring 2022 – Current**

- Lead and oversee club initiatives that bolster the ECE department and support current undergraduate students

Department of Homeland Security Suitability **Summer 2023**
Grand Prize Hack – *HackUMass 36-Hour Hackathon* - *500 participants* **Fall 2022**
Best Venture Pitch Award – *UMass Center of Entrepreneurship* **Fall 2022**
UMass Amherst Dean's List **Fall 2019 – Fall 2023**