John Dale

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Education

University of Massachusetts, Amherst — **Amherst, MA**
Bachelor of Science in Computer Engineering | **GPA**: 3.79/4.00 — **Sept. 2020 – Dec. 2024**

Skills

Technologies: Linux, Git, AWS, Docker, OpenCV, 5G, Unity, ROS2, Node.JS
Programming Languages: Python, C++, C, C#, SQL, Bash, MATLAB, JavaScript

Experience

Tesla — **Palo Alto, CA**
Incoming Wireless Connectivity Software Intern — ***Sept. 2024 – May 2024***

MITRE — **Bedford, MA**
Computer Engineering Intern — **June 2024 – Aug. 2024**

- Configured real-time machine learning infrastructure using Python and AWS SDK, leveraging Amazon's models.
- Designed and implemented visual overlays and CSV output mechanisms for effective monitoring and analysis of model performance.
- Wrote Python scripts for quantitative analysis, enabling the adjustment of both model parameters and video input settings based on performance results.

MITRE — **McLean, VA**
Computer Engineering Intern — **June 2023 – Aug. 2023**

- Developed and scaled a Python application for testing private 5G network configurations in high device density scenarios, allowing for optimization of RAN and 5G Core for beamforming and MU-MIMO features.
- Utilized network interface isolation to consolidate devices, reducing required test resources by 80%.
- Led the configuration and deployment of a 5G femtocell with an open-source 5G core solution.

iRobot — **Bedford, MA**
Systems Test Engineer Co-Op — **Jan. 2023 – May 2023**

- Spearheaded the development of a Python application to extract robot vacuum performance metrics from Qualisys, an infrared motion capture system, reduced testing time by 70%.
- Enhanced the clock resolution of an embedded Linux platform 5x using C++ for a ground truth system.

Projects

Photo Lock (1st Place Senior Design Project) — **July 2023 – May 2024**
Lead Software Developer – Team of 4

- Built an end-to-end camera system on an embedded Linux platform to ensure 100% integrity and authenticity of images/videos and metadata, including user fingerprint, date, time, and location.
- Utilized asymmetric encryption, digital signatures, AWS S3, AWS Lambda, Docker, and SQL.
- Developed two websites using Next.js for cloud media storage and social media integration (Twitter Clone), showcasing the infrastructure's potential for integration with existing media platforms.

RFID Hacking (1st Place Award HackUMass) — **Nov. 2022**
Partner Project

- Reverse-engineered RFID protocols using bit-banging to simulate malicious attacks on access control systems.
- Replicated a standard access control system with microcontrollers programmed in C++.
- Developed an inexpensive, injectable, sniffing device capable of remote replay and DoS attacks.

Extracurricular Activities and Awards

IEEE-HKN National Honor Society, *President* — **Feb 2022 – Present**
1st Place Hack – HackUMass *36-Hour Hackathon,* *800 participants* — **Nov. 2022**
1st Place – Senior Design Project, *37 teams* — **May 2024**
Secret Security Clearance — **Jan. 2024 – Present**