JOSEPH DEMAREST

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EDUCATION

College of Staten Island | Bachelor of Science in Computer Science — Expected Dec. 2023

- GPA: 3.8/4.0
- *Participant*, Computer Science Club, Coding Bootcamps, Hackathons

University at Buffalo | Bachelor of Engineering in Electrical Engineering

- GPA: 3.3/4.0
- 96/120 credits earned

EXPERIENCE

Multidisciplinary Engineer (Software and Hardware) — Jan. 2023 - Present

Vyir Inc | New York, NY

- **Engineered** a comprehensive beam profiler solution, seamlessly integrating custom-designed electronics with the Raspberry Pi platform.
- Designed PCBs using **KiCad**, ensuring optimized layout and high-quality integration with other custom interfaces..
- Designed and 3D printed custom cases and mounting mechanisms tailored for the complete device, ensuring a professional appearance, protection and functionality.

Key Accomplishments:

- **Designed and implemented** a state-of-the-art beam profiler application leveraging **NumPy**, **SciPy**, and **matplotlib** for precise measurement and display of laser characteristics, which significantly improved the product's quality and reliability.
- Delivered a holistic product experience by ensuring **seamless integration** of software with custom electronics, demonstrating **expertise in both hardware and software realms**.

Assistant Manager (Previously Cashier) — Aug. 2017 - June. 2021

Rite-Aid | Staten Island, NY

- **Cashier (Aug. 2017 - Aug. 2019):** Managed cash register operations with precision, addressing customer inquiries, handling transactions, and ensuring a seamless checkout experience.
- **Assistant Manager (Aug. 2019 - Aug. 2021):** Oversaw daily store operations, including staff scheduling, inventory management, and financial reporting, while also resolving escalated customer issues with diplomacy.
- Supervised and trained new hires on store procedures, POS system usage, and customer service standards to cultivate a productive and customer-focused team.

PROJECTS

Wifi Cameras | JS, NodeJS, Arduino, C++, CAD and 3D Printing

- Engineered cost-effective wifi cameras using Arduinos and OV7670 camera modules, providing performance on par with commercial alternatives at a significantly reduced cost and allowing for self-hosted cloud services.
- Developed a robust web interface, utilizing JavaScript and NodeJS, enabling live video feed accessibility from any location via a custom URL.
- Designed and 3D printed a customizable case that can be mounted on almost any surface..

Home Lab | Linux Servers, Docker, Kubernetes, Proxmox

- Established a sophisticated home lab, utilizing four physical servers running Linux-based hypervisors to create a controlled, sandboxed environment suitable for learning, experimentation, and self-hosting various cloud services.
- This space facilitated extensive hands-on experience in managing Linux servers, containerizing applications using Docker, and orchestrating them with Kubernetes. It is also used to host the various applications I develop for my personal use.

Custom Keyboard PCB | Microcontrollers, PCB Design, Firmware Programming, CAD, 3D Printing

- Solely crafted a custom keyboard PCB, showcasing end-to-end hardware and software development skills. This encompassed meticulous PCB design, firmware programming, designing and 3D printing a case to bring the design to life.
- Implemented modifications and optimizations to QMK firmware to enhance functionality and user experience.
- The entirety of the project, including PCB design files and modified firmware code, has been made available on GitHub for open-source utilization and community contribution.

Plant Monitoring | JS, React, Arduino and C++

- Conceived and developed a plant monitoring and watering system using Arduinos and C++, which obviates the need for regular manual oversight.
- This system captures critical data regarding plant hydration and light levels and displays this information on a user-friendly dashboard developed with JS and React.

SKILLS

Languages: Python, Java, C++, C, JavaScript, MySQL, HTML/CSS | Software: Git, Unix, Docker, Kubernetes | Systems: Linux, Windows, Mac OS | Libraries: numpy pandas matplotlib scipy flask requests pyqt astropy