Mitchell Conrad

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Education

York College of Pennsylvania Expected Aug 2024
Bachelor of Science in Computer Engineering 4.0 GPA

Experience

Controls Engineering Intern, Multi-Dimensional Integration – Shrewsbury, PA Jan 2023 – Dec 2023

- Developed PLC code and HMIs to control a chocolate production line that increased the customer's productivity by enabling operators to quickly transition between products
- Integrated multiple systems using message-based communications, ensuring safe, reliable, and automatic processes
- Reverse-engineered an outdated and disorganized control system, led the system's redesign and replacement, and completed the project under budget, earning a 50% profit while ensuring customer satisfaction
- Designed an electrical system and programmed a PLC-5 to control a DC drive using an Ethernet to RIO gateway, which restored the functionality of the production line and stopped the customer from losing money
- Honed leadership and communication skills by directing technicians and corresponding with customers

R&D Software Engineering Intern, Becton Dickinson – Sparks, MD May 2022 – Aug 2022

- Reproduced and analyzed bugs using logs, developed fixes, created testing procedures, and improved system reliability on the COR project, an automated molecular diagnostic instrument
- Developed the front-end in Angular and the back-end in C# for an internal feature allowing instruments to accept expired consumables, which reduced plastic waste and increased productivity in R&D and Operations

Projects

Optical Wireless Communications (OWC), Capstone Design I & II May 2023 – Present

- Led the design and implementation of software and hardware improvements to a directional infrared-based OWC system, enabling robots to locate other mobile nodes and facilitate reliable data transmission autonomously
- Developed a Python-based multithreaded pipeline that uses OpenCV to merge many video streams into a panoramic feed, sending the resulting stream to a custom object detection model for real-time object recognition, and achieving exceptional frame rates in an embedded environment
- Designed and implemented algorithms that use CV to aid in dynamically discovering and maintaining connections in a mobile ad-hoc network. These algorithms increased maximum throughput by 65%

PaperTrader, Software Engineering and Design Jan 2022 – May 2022

- Collaborated with a team to develop a simulated stock trading web app using React, Firebase, CSS, and Git which allows users to practice investing in real markets without the risk

Recoil Simulation VR Mod, YCP Hacks Nov 2023

- Developed a pneumatic-based recoil simulation system for VR games during a weekend-long hackathon, winning Best of Show, Best Hardware Hack, and Best VR Hack

Skills

Programming: Python, C, C++, C#, Java, HTML, CSS, JavaScript, React, Studio 5000, SQL, MIPS, Verilog

Software: Ignition HMI, FactoryTalk, TINA, KiCad, Azure DevOps, SolidWorks

Technical Skills: OpenCV, MVC Architecture, Agile Development, Circuit Design & Analysis, 3D Printing

Activities and Awards

IEEE Student Branch Secretary Apr 2023 – Present

- Planned and executed engineering events with the other executive board members for student branch members

Computer Science Tutor Feb 2022 – Present

- Supported students with their Java and C assignments by teaching them data structures and debugging strategies

Engineering Society of York Award Apr 2022

- Recognized for outstanding academic performance in the Electrical and Computer Engineering program