Sean Rassa

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Education

Drexel University Philadelphia, PA
Bachelor of Science in Electrical Engineering Expected June 2027
Bachelor of Science in Computer Engineering 4.00 GPA

Skills

Programming Languages: VHDL, C, Python, TCL, C#, MATLAB
Software: Vivado, QuestaSim, Git, Linux, Kubernetes, Docker, Gitlab CI/CD, Microsoft Office

Experience

Susquehanna International Group Bala Cynwyd, PA
FPGA Engineer Co-op 2 September 2025 – August 2026

- Established the team's Kubernetes infrastructure, including Docker image build pipelines, deployment manifests, and onboarding documentation to enable future containerized deployments
- Migrated a lab machine monitoring system from a standalone server to Kubernetes, containerizing the MQTT broker and NGINX web server to track server configurations and prevent simultaneous FPGA programming
- Contributed to migrating FPGA CI/CD pipelines from TeamCity to GitLab, designing template-based pipeline architecture, benchmarking VM resources, and deploying hardware regression machines
- Consolidated two overlapping CAMs in the receive path into one, preserving host upload and downstream forwarding while reducing resource usage by 18%

FPGA Engineer Co-op 1 September 2024 – March 2025

- Upgraded an ethernet payload parser from 10G to 40G input and debugged in both simulation and hardware using custom tests with packet capture (PCAP) data, carrying the design through to a live production deployment.
- Refactored a precision time protocol (PTP) timestamping module to run on a new clock domain, resolving clock domain crossing (CDC) issues and verifying accuracy with hardware tests
- Integrated a TCL script into the build flow to detect unconnected error signals and halt synthesis, ensuring consistent and scalable error propagation across designs

Woodward McCoach Inc. West Chester, PA
Software & Hardware Development Engineer September 2023 – March 2024

- Developed and characterized leak detection circuitry to be implemented in the company’s next generation liquid-cooled server systems
- Led the design of a flexible PCB for coolant leak detection and developed a functional prototype
- Engineered microcontroller drivers in C and designed device logic to monitor for system faults and trigger emergency power-off functionalities in the case of a system failure
- Implemented Python scripts for automated voltage change logging to optimize data collection and analysis during hardware testing

Students Tackling Advanced Research (STAR) Scholars Program Philadelphia, PA
Research Assistant June 2023 – September 2023

- Worked closely with Dr. Joshua Agar to employ PLD and high-speed RHEED in a material science lab, advancing the real-time analysis of material growth through machine learning
- Utilized Pytorch to develop a lightweight physics-constrained neural network to parameterize RHEED results faster and more accurately than traditional techniques
- Employed HLS4ML to begin implementation of the neural network on an FPGA for real time control and adjustment of the testing devices

Honors

- Pennoni Honors College, 2022 – Present
- IEEE Eta Kappa Nu Honor Society, 2024 – Present
- Tau Beta Pi Honor Society, June 2025 – Present