Tyler Korz

Embedded Systems Engineer | Software Engineer

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EDUCATION

Bachelor of Science in Computer Engineering (Minor in Computer Science) **August 2025**
The Pennsylvania State University
Relevant Course Work: Embedded Systems, Computer Organization, Operating Systems, FPGA Design, Control Systems, Circuit Design

SKILLS

Programming: C, Python, Java, Bash, SQL, HTML, CSS
Systems & Hardware: Verilog, Digital Logic, Circuit Design, Raspberry Pi, I^2C/SPI, MATLAB, Simulink, LabVIEW, POSIX Threads, Linux, Logic Analyzers, Oscilloscopes, Handheld Meters
Developer Tools: Git, GitHub, Docker, Visual Studio, Make
Data Tools & Libraries: Pandas, NumPy, Matplotlib

EXPERIENCE

Remote Controlled IV Pump System - Penn State Health Hershey Medical Center **January 2025 - April 2025**

- Worked with a team of six to design and prototype a remote controlled IV pump system using a BD Alaris PC Unit and a Raspberry Pi with a touchscreen interface
- Reverse engineered keypad signals and implemented real time dose control that reduced nurse exposure to patients completely
- Developed a responsive interface on Raspberry Pi that allowed precise dose adjustments with sub second latency
- Presented project findings to faculty and industry mentors, highlighting safety improvements and workflow efficiency

PROJECTS

Autonomous Robocar Development - The Pennsylvania State University

- Programmed a multi-mode autonomous vehicle using Raspberry Pi 4 with C and Linux, supporting manual, line tracing, laser following, gyro navigation, and autonomous path modes
- Built a real time data acquisition engine using an IMU sensor at one hundred hertz with POSIX threads, GPIO, and I^2C communication
- Achieved control loop latency below one second and demonstrated consistent path tracking in variable conditions

Client/Server Application Development - The Pennsylvania State University

- Built a full-stack Java application with GUI frontend, server-side processing, and SQL database queries
- Implemented event-driven programming and authentication controls to manage user permissions and system security
- Applied unit testing and documentation best practices, resulting in a production-ready prototype that simulated enterprise deployment

Pipelined CPU Architecture Project - The Pennsylvania State University

- Designed and verified a five-stage pipelined CPU in Verilog using Xilinx Vivado, implementing instruction fetch, decode, execute, memory, and write-back stages with hazard detection, forwarding logic, and control path integration to optimize pipeline throughput.
- Conducted functional simulation and timing analysis on FPGA hardware, writing MIPS assembly test programs and test benches to validate CPU performance, gaining experience with digital logic design, embedded processor architecture, and hardware verification workflows.

CAMPUS INVOLVEMENT

Google Developer Student Club - The Pennsylvania State University

- Participated in coding challenges and collaborative projects, developing technical solutions and presentations that strengthened problem-solving, teamwork, and communication skills

Nittany Data Labs Club - The Pennsylvania State University

- Engaged in data science and machine learning workshops using Python libraries like Pandas and NumPy, collaborating on student-led projects to perform data analysis and prototype predictive models