Stephen Grenesko

(412) 925-5409 | srgrenesko@gmail.com

SUMMARY

Embedded hardware specialist experienced in testing LiDAR and computer vision systems, and adept at developing custom diagnostic fixtures and prototypes. Successfully improved testing processes and system reliability through hands-on hardware troubleshooting and integration. Proficient in PCB design, Linux, and shell scripting. Interest in robotics, hardware design validation, and applied sensor technologies.

EDUCATION

University of Pittsburgh **Sep 2020 - Apr 2025**
B.S., Computer Science

Community College of the Air Force **Feb 2020 - Aug 2023**
A.S., Applied Science

WORK EXPERIENCE

Mine Vision Systems May 2025 - Present
Hardware Engineer Technician Pittsburgh, PA

- Performed functional hardware testing and rework on LIDAR range finder and computer vision technologies, enhancing system reliability and reducing electromechanical faults across 50 field units.
- Engineered and constructed testing fixtures to evaluate LIDAR unit degradation and cable connectivity, accelerating hardware debugging processes by 35% from previous testing procedures.
- Built prototypes of a hardware peripheral expansion board for unit testing, contributing to iterative design improvements for Mine Vision Systems' second generation product.
- Verified performance issues in custom printed circuit boards (PCBs) to identify I2C communication errors between sensors and compute modules, utilizing documented testing procedures and technical communication skills.

University of Pittsburgh - Open Lab Aug 2022 - Aug 2025
Electronics Prototyping Specialist Pittsburgh, PA

- Led research integrating computer vision with embedded electronic systems to improve prosthetic manufacturing, incorporating Arduino microcontroller hardware into a Python-based workflow relevant to innovative system design.
- Conducted repairs and maintenance of fabrication technologies including 3D printers, laser cutters, and soldering workstations, ensuring system reliability and increased operational uptime.
- Performed debugging and prototyping microcontroller-based projects, performing code reviews on Arduino IDE sketches and rectifying hardware faults through effective troubleshooting and technical documentation.
- Developed and implemented electronic prototyping infrastructure that enhanced the lab's embedded systems design capabilities, fostering a collaborative and innovative engineering environment.

PROJECTS

Computer Vision Prosthetic Fabrication Workflows (NCUR 2025)

- Led development of computer vision and force probe toolkit to improve consistency in prosthetic socket alignment and fabrication using 3D printing technologies. Combined camera marker tracking and 3D positioning with Python scripting to overlay force-point data onto 3D scans. Resulted in accuracy of 90% per water displacement fit testing.

EMG Sensor Hardware Integration Library, Arduino

- Developed open source library generating interactions between EMG sensor readings and several common hardware components including bare LEDs, servo/stepper motors, and liquid crystal displays. Implements ideal coding practice regarding microcontroller based development, open source for public use on GitHub.

SKILLS

- **Embedded Systems/Hardware**: Electronics design, hardware validation testing, LiDAR sensor modules, Arduino microcontroller development, Raspberry Pi systems design, embedded prototyping, electromechanical assembly repair, test fixture development, I2C protocol validation, UART communication, circuit design, thermal testing, breadboarding, technical documentation, Electrical/Computer Engineering, X86 Architecture
- **Programming Languages**: Java, C/C++, C#, Bash, Python, Embedded C, PowerShell, MATLAB
- **Software Development**: Git/GitHub version control, Jira management, Linux systems, integrated development environments
- **3D CAD and PCB Design**: Altium, KiCAD, Fusion360, Solidworks, EasyEDA, PCB layout/revision, soldering rework, mechanical design, rapid prototyping, 3D print optimization, FDM/SLS print management, EDA Schematic Design Tools