Alejandro Romero-Lozano

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Education

University of Arizona **B.S Electrical & Computer Engineering** August 2021 - May 2025 GPA: 3.8/4
M.S Electrical & Computer Engineering Expected May 2026

Professional Experience

Engineering Intern May 2025 - Present
Texas Instruments – Test and Validation for Precision ADC Tucson, AZ

- Develop novel software architecture in LabView to automate test setup and execution, decreasing overall test time
- Reconstruct two modular boards for new wafer-level chip scale (WCSP) package using altium

Undergraduate Researcher August 2024 – May 2025
University of Arizona – Dr. Ali Akoglu's Reconfigurable Computing Lab Tucson, AZ

- Researching high-performance computing by optimizing CPUs, GPUs, and FPGAs for resource management
- Integrating new testing work flow for DARPA sponsored novel computer architecture

Engineering Intern May 2024 – August 2024
Caterpillar Inc – Electrical Integration for Large Mining Trucks (LMT) Tucson, AZ

- Planned and executed electrical load test on LMT, revamping and standardizing planning document for future tests
- Gathered information and presented novel wire routing solution, helping convince key decision makers
- Designed small harness testing fixture and provided design recommendations for general electrical integration

Engineering Intern May 2023 – August 2023
Caterpillar Inc – Software Validation for Hydraulic Mining Shovels (HMS) Peoria, IL

- Full-stack development of web-based application to display machine health information in real-time
- Configured and setup LEMP stack web server and designed the MySQL database to integrate batched machine data
- Collaborated with cross-functional teams to gather requirements, design solutions, and ensure project success

Undergraduate Researcher August 2022 – May 2023
NASA Space Grant – Dr. Erika Hamden's Super-LOTIS Lab Tucson, AZ

- Designed CAD for, and implemented prototype, of a custom, five axis, six-figure, ultra-high vacuum (UHV), peripheral system for ground based robotic telescope
- Coordinated with manufacturers to adapt design to effectively balance function versus cost of UHV system
- Modified balloon-borne telescope's calibration assembly's motion system to reduce complexity

Projects & Extra-Curriculars

Electrical Lead January 2024 - Present
Disarray Battlebot - TV Show League Tucson, AZ

- Led and created the first no-error, high performing, electrical system that allowed Battlebot first win in years
- Collaborated with team under high pressure scenarios while maintaining a positive environment

Electrical Lead May 2023 – May 2024, May 2022 – May 2023
BAJA SAE – University of Arizona Wildcat Racing Tucson, AZ

- Leading the development of an embedded telemetry system for monitoring of an off-road vehicle in real-time
- Grew team from 2 to 11, expanded team's responsibilities, and executed on design schedule to meet deliverables
- Maintaining and continually testing a 5000+ line codebase in C++ and Python
- Designed and created parallelized embedded architecture to get 500Hz data sampling rate

Intramural League Competitor: 3v3 Basketball, 5v5 Basketball, Dodgeball, Pool Basketball

Technical Skills

Programming: C/C++, Python, Kotlin, SQL, Matlab, JavaScript, CSS, HTML, PHP, Verilog
Software: Solidworks, Creo, Fusion360, Git/Github, KiCAD, Ubuntu, Xilinx, Office Suite, Nginx, VSCode, Android Studio
Manufacturing: 3D Printing, Multimeter, Woodworking, Soldering, Saw, Crimpers, Lathe, Drill Press
Languages: English, Spanish

Publications

2nd Place for Undergraduate Paper: Romero-Lozano A., Correa D., Larsson M., Pimienta J., Byerly M., Hall L., Goco B., Missbrener J., White C., Owen A., Lee J. (2024). Hardware-Software Co-Design of Integrative Telemetry System for Off-Road Racing Vehicle. International Telemetering Conference Proceedings,
…2 publications omitted on Telemety of Off-Road Racing Vehicle