

PAUL RICHARDSON

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www.pjr-robotics.com

Education

Mechanical Engineering (2011-2012, 2015-2018)

The University of Texas at Austin

Experience

Manufacturing Engineer I *Fox Robotics*

January 2025 – January 2026

- Developed internal software tools for automated component configuration, calibration, quality checks, and diagnostics. Integrated with internal infrastructure APIs and interfaced with CAN devices, Siemens PLC, 2D/3D LiDAR sensors, and onboard Linux PC.
- Reduced build steps and inventory handling, removed redundant quality checks, and reduced average build cycle time.
- Set up offboard electrical workstation with custom wire harnesses to streamline and parallelize pre-configuration and sub-assembly steps.
- Improved work instruction quality. Set standards and single sources of truth. Trained technicians and audited processes regularly.
- Coordinated fleet firmware updates, evaluated and debugged beta versions, and contributed code fixes and optimizations across teams.

Robotics Technician I *Fox Robotics*

December 2023 – January 2025

- Converted forklifts to autonomous robots - fabrication, assembly, wire harnesses, configuration, calibration, QC, and troubleshooting.
- Documented training processes and wrote software setup guides, automated complex setup steps, wrote scripts for users new to Linux.
- Created FoxKit - internal software to automate common processes and reduce training requirements. Led development with a small team.

Robotics Specialist Consultant *Wildfire Robotics*

January 2024 – Present

- Oversaw control system onboarding for new hires. Redesigned control architecture with ROS2 for robust and safe wireless remote operation.
- Designed communication redundancy with wireless mesh network fallback to recover from failed nodes or broken wired connections.
- Fully re-worked touchscreen web interface with customized control elements, implemented new camera views for better operator awareness.

Robotics Specialist *Wildfire Robotics*

January 2020 – October 2023

- Independently designed, built, and tested a low-cost, waterproof, distributed control system for 1+km robotic snake and wireless mesh.
- Developed web front-end for operator touchscreen and joystick connected over wireless mesh network. Wrote control system documentation.
- Designed mechanical sub-systems, 3D and 2D CAD modeling, prepared drawings for patent filing and manual/CNC fabrication.

Research and Design Intern *Innovation First International HEXBUG*

Summer 2016, 2017

- Created Robotic Soccer product line, built prototypes with spare parts and 3D printing. *The Toy Insider* "Top Holiday Toys 2018" winner.
- Prototyped and tested numerous product concepts. Developed PID balancing controls in C for a robot balancing on a ball.

Engineering Design Intern *Warrior Manufacturing Services, Ltd.*

Summer 2012, 2013

- Failure analysis and redesign of safety system. CAD design in SolidWorks with PDM, drawings for CNC and manual fabrication.
 - Designed inexpensive hazardous area sensors and hydraulic mechanisms for automated oil and gas drilling and pipe handling.
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Leadership

FIRST Robotics Mentor *Eastside Memorial High School FRC 3320 and Conroe ISD FRC 1477*

- Taught CAD, CNC machining, common shop tools, electronics, and Java/C++/Python programming with a focus on controls and automation.
- Teams achieved improved results over prior years, with 3320 ending a playoff drought and 1477 winning a World Championship.

Event Set Designer *Texas E-Sports Association at UT Austin*

Spring 2012, 2013

- Designed and managed stage set construction for international pro e-sports events. Organized build meetings, taught power tool safety.
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Skills

- Python, ROS2, JavaScript, CSS, C++, Java, Git, system architecture, TCP/IP, motion control, machine vision, PLC, Linux, Docker
 - Electrical system design, embedded systems, microcontrollers, sensors, actuators, CAN, I2C, wireless communications.
 - 2D/3D CAD (SolidWorks, Creo, OnShape), mechanism design, DFM/DFA, DFMEA/PFMEA, CNC, 3D printing, and manual fabrication.
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Hobbies & Interests

- Triathlon, hiking, camping, wakesurfing and wakeboarding, kayaking, traveling, fostering dogs, and the general outdoors
- 3D printing and DIY projects, cooking and baking, comedy and improv, escape rooms, tabletop and video games

Employment Eligibility: U.S. Permanent Resident, Canadian Citizen Languages: English, Spanish