Jonathan Wallen

Mechanical Engineer - Robotic Hardware

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Personal Summary

Agile and inventive mechanical engineer with extensive experience in robotics product development, from initial R&D to launch. Adept at designing robust, scalable hardware under aggressive timelines. A clear communicator with an instinct for critical questions that drive clarity and alignment with design intent. Strong technical communicator and strategic thinker focused on practical hardware solutions, rapid iteration, and real-world deployment.

Experience

Apr 2023 – Present **OSARO**, *Senior Mechanical Engineer*, San Francisco, CA

- Led hardware R&D, launching 5 unique products from concept to field deployment. Personally designed full robotic picking systems, multiple robotic end effectors, automatic tool changers, and a high-reliability rotary union for industrial automation systems.
- Owned all hardware for OSARO's most complex deployment, an international project with $1.2M in hardware COGS. Designed system optimizing for performance, scalability, and cost.
- Managed interdisciplinary technical efforts and schedules to align mechanical, electrical, and software systems. Owned programmatic requirement definition and feature request processes.

Jan 2022 – Oct 2022 **Built Robotics**, *Senior Robotics Hardware Engineer (May-Oct)*, San Francisco, CA
Robotics Hardware Engineer (Jan-May), San Francisco, CA

- Redesigned primary hardware product - a retrofit platform that converts a 30-ton excavator into an autonomous vehicle, integrating liquid-cooled computing, GPS, inertial sensors, and perception systems. Improved mechanical toughness, thermal performance, and mean time between maintenance by 8X.
- Piloted and field-tested first hydraulic pile-driving end effector that autonomously installs 400 lb steel I-beams. Concepted, prototyped and tested in < 2 months, to achieve new product-market fit.
- Optimized personnel safety system, doubling the range of wireless emergency stops and incorporating a rugged alarm system that quadrupled the safe operation area, reducing field labor by $<\%$ 50.

Aug 2019 – Dec 2021 **University of Hawaii at Manoa**, *Research Engineer*, Honolulu, HI

- Designed and deployed advanced underwater robotic platforms for autonomous research missions, integrating sensors, propulsion, and navigation systems.
- Conducted at-sea trials and iterative field testing to validate reliability and performance in harsh marine environments.

Education

2021 – 2023 **PhD Candidate, Mechanical Engineering**, *University of Hawaii at Manoa*
Focus: Design Optimization, Dynamics & Control, Autonomous Robotic Systems

2021 **MS, Mechanical Engineering**, *University of Hawaii at Manoa*

2019 **BS, Mechanical Engineering**, *University of Hawaii at Manoa*

Skills

- **Engineering:** Mechanical Design/Modeling, GD&T, DFM, FEA, Thermal Simulation, Prototyping, Composites, 3D Printing, Electrical Integration, Optics, Industrial Automation, Root Cause Analysis
- **Tools:** SolidWorks, Autodesk, MATLAB, Python, GitHub, Unix, LaTeX, Adobe Creative Cloud
- **Soft Skills:** Product Development, Technical Communication, Cross-functional Leadership

Portfolio

*Explore the full portfolio at **www.insp-eng.com**.*

- **Patents**: Integrated wave energy converter and docking station with ramped cloverleaf supplemental heave plate, Patent No. 11975811; Robotic tool changer (pending).
- **Teardrop Trailer Build**: Designed and fabricated a custom aluminum camping trailer.
- **Gyroscopic Watch Winder**: Engineered watch accessory that automatically keeps watches wound.