

Owen Patch

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EDUCATION

University of Michigan

Bachelor of Science in Mechanical Engineering

Expected Graduation: December 2026

Ann Arbor, MI

WORK EXPERIENCE

Whisker

May 2026–August 2026

Innovation Mechanical Engineering Intern

Auburn Hills, MI

- Evaluate novel consumer product concepts through rapid, multi-disciplinary feasibility studies—spanning additive manufacturing, mechatronics, fluid mechanics, and sensor integration—to inform early-stage R&D concept direction.
- Designed mechatronic test fixtures integrating servo-driven linear actuators and Arduino microcontroller logic to automate software QA validation and eliminate operator-induced repeatability error.
- Leading feasibility investigation of a consumer appliance embedded subsystem, applying fan performance characterization, filter medium evaluation, airflow analysis, and odor-removal testing to establish technical viability and guide concept selection.

Apple

January 2025–December 2025

Acoustics Manufacturing Quality Engineering Intern

Sunnyvale, CA

- Ramped an iPhone bottom speaker module through NPI builds, leading end-to-end failure analysis, corrective action, and Cpk improvement to ensure specification compliance and robust manufacturing quality.
- Applied deep expertise in acoustic component design, performance, and reliability to diagnose complex failure modes via 8D root cause analysis with vendors, driving rapid resolution during time-critical builds.
- Owned critical bonding strength evaluations, cosmetic quality, yield loss investigations, and automated optical inspection system implementation and improvements across the component supply chain.
- Employed advanced analytical methods—statistical process control in JMP, cross-sections, CT scanning, SEM, EDS, and FTIR—to characterize failure modes and drive issues to closure with quantified process capability.
- Collaborated cross-functionally with product design, hardware engineering, global supply management, and systems integration to resolve APQP-stage issues during NPI builds, balancing quality, supply risk, and cost.

Scout Motors

May 2024–August 2024

Quality Engineering Intern

Novi, MI

- Led cross-functional quality initiatives defining and communicating vehicle KPIs—warranty cost, in-field repair rate, and customer satisfaction—across CMF, NVH, ergonomics, and serviceability domains.
- Directed large-scale data analysis using JD Power's IQS platform to establish quality benchmarks and provide defensible pathways to product feasibility and engineering sign-off.
- Developed a generative AI tool in Microsoft Azure AI Studio—leveraging 30,000+ customer complaints—enabling the quality organization to surface high-level insights and accelerate root cause triage

BorgWarner

May 2023–December 2023

Product Engineering Co-Op (Engine Solenoids)

Auburn Hills, MI

- Led variable force solenoid (VFS) development through all engineering stages—DFMEA, design, rapid prototyping, and DVT validation—for BorgWarner's Morse Systems actuation products serving global OEM customers.
- Prototyped and validated a significant design improvement for a global OEM, achieving major gains in performance and robustness while realizing a substantial unit cost reduction.
- Directed root cause analysis using a data-driven approach to identify failure drivers, implement DFM improvements, and define tighter manufacturing tolerances for production readiness.

PROJECTS

Four-Bar Linkage Mechatronics Project (*Design and Manufacturing II*)

Fall 2024

- Designed in SolidWorks and manufactured a four-bar linkage integrating proximity sensors, motor encoder feedback, and Arduino PID control to dynamically reposition the mechanism in response to real-time system disturbances.

Redesigned Array Hinge for the University of Michigan Solar Car (ME Capstone Project)

Winter 2026

- Engineered a retrofit four-bar array hinge for the Millennium solar vehicle; performed kinematic synthesis in ADAMS and FEA in ANSYS for robustness under side-loading and torsion, and redesigned the bearing stack to eliminate joint play and improve driver ergonomics.

SKILLS

Engineering Methods: FMEA/DFMEA, 8D, SPC, Cpk, GD&T, DFM, APQP, NPI, Root Cause Analysis, Failure Analysis, Rapid Prototyping, Additive Manufacturing

CAD, Simulation & Data: SolidWorks, Siemens NX, ANSYS, ADAMS, JMP, MATLAB, Minitab, Python, SQL, Tableau

Controls & Software: Arduino, Microsoft Office (Excel/VBA/PowerPoint/Word), Teamcenter (PLM), Azure AI Studio

Lab & Metrology: CMMs, Instron, SEM, EDS, FTIR, CT Scanning, Keyence Surface Profilers, Hardness Testers, DAQs, Thermal/Environmental Chambers