

John Paul Fallon

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Biomechatronics engineer focused on hardware that works outside the lab: sensor-integrated, closed-loop devices that span mechanical design, embedded electronics, and data pipelines that turn field results into design decisions. Proven on prosthetic and rehabilitation systems worn for weeks at a time, with earlier work in sports technology, marine field engineering, and nano-architected materials research. Six patents pending.

EDUCATION

University of Washington | *Seattle, WA*

Graduated: June 2024

- Bachelor of Science, *Mechanical Engineering, Biomechanics* (GPA: 3.75/4.0, Dean's List 11/12 quarters)
- Ex. Coursework: Musculoskeletal Biomechanics (graduate lvl), FEA, Composite Materials Design, Mechanics of Materials

EXPERIENCE

Biomechanical Research Engineer II & Lab Manager

August 2024 - July 2026

Sanders Lab, UW Bioengineering | Seattle, WA

- Developed and validated wearable, non-invasive sensor-integrated devices for Achilles tendinopathy rehabilitation and adaptive prosthetic socket systems with closed-loop feedback control, utilizing signal processing, physiological signal acquisition, biomechanical modeling (MATLAB/Python), sensor characterization, and 3D scanning (FARO CMM)
- Conducted 100+ user studies across in-lab and multi-week take-homes; built automated data pipelines to derive behavioral metrics and evaluate device and controller performance across diverse users and real-world conditions
- Co-authored manuscripts in preparation and contributed to 6 patent applications as a named inventor; created cross-functional data visualizations translating complex sensor findings for clinical and engineering audiences
- Managed lab operations and led 5 undergraduate researchers across 3 concurrent device development projects, building shared fixtures, manufacturing processes, calibration protocols, and repeatable experimental workflows the team relied on, providing technical direction from mechanical and experimental design through data analysis

MOF Synthesis Research Assistant

December 2023 - June 2024

Novoselov Research Group, UW Institute for Nano-engineered Systems | Seattle, WA

- Designed and built a continuous-flow reactor for MOF synthesis using supercritical CO₂, solving multi-phase flow and injection stability challenges to successfully synthesize HKUST-1

Engineering Design & Field Intern

June 2022 - September 2022

Applied Physics Lab, University of Washington | Seattle, WA

- Manufactured sonar array transducers and CNC-milled parts and executed individual structural design projects
- Designed, manufactured, installed, and validated a dynamic mount for a research vessel's submersible sensor frame

Dock Staff Assistant Manager

June 2021 - September 2024

The Electric Boat Company | Seattle, WA

- Managed dock operations team of 5+ employees, trained new staff, performed fleet maintenance on 25+ electric vessels, and conducted emergency response operations in a fast-paced, high-pressure marine environment

EXTRAS

IBM AI Engineering Professional Certificate

July 2025 - August 2025

Structural Team Engineer | *Washington Superbike*

October 2021 - October 2022

Future of Sports Technology RA | *UW Human-Centered Design & Engineering*

October 2020 - June 2021

SKILLS

Research & Analysis

Experimental Design, Sensor Characterization, Signal Processing, Physiological Signal Acquisition, V&V, Algorithm & Data Pipeline Development, Failure & Root Cause Analysis, Statistical Methods, Human Subjects Research (IRB)

Design & Manufacturing

Prototype Development & Characterization, GD&T, Embedded Sensors & Transducers, Electronics Prototyping, Closed-Loop Control Systems, DFM/DFA, Advanced Composites Fabrication, Mechanical Part/Fixture Design

Software

MATLAB, Python (pandas, SciPy, NumPy), Embedded C/C++, Inventor, SolidWorks, ANSYS, Abaqus, TensorFlow, PyTorch, DAQ Systems, Git/GitHub, Motion Capture (Vicon/Qualisys), Adobe Creative Suite