Lincoln Wen

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Mechanical engineering intern with surgical robotics R&D experience at Johnson & Johnson MedTech. Skilled in full-cycle product development from concept through prototyping, testing, and design validation.

RELEVANT SKILLS & INTERESTS

- **CAD/Simulation:** SolidWorks (CSWA Certified), Onshape, Finite Element Analysis (FEA)
- **Manufacturing:** 3D Printing, CNC Machining (Haas TM & Mini Mill), Rapid Prototyping, DFA, DFM

RELEVANT WORK EXPERIENCE

Johnson & Johnson, MedTech Jun 2025–Aug 2025
Mechanical Engineering Intern *Santa Clara, CA*

- Advanced the design of a robotic surgical instrument subsystem from V1.5 to V2.0, delivering a fundamentally re-architected concept in early-stage R&D.
- Defined early subsystem requirements and conducted baseline testing/benchmarking of existing devices to establish quantitative performance metrics.
- Developed, iterated, and tested an initial design (~5% failure rate), then performed root cause analysis and pursued two alternative architectures to improve reliability and performance.
- Built and tested numerous rapid prototypes across all architectures using SolidWorks, progressing through multiple design-validation cycles. Applied DFA/DFM principles to improve manufacturability and assembly.
- One architecture ultimately exceeded performance targets; selected and advanced this architecture through further prototyping, preliminary verification testing, and presented findings and proposed next-phase development pathways to senior leadership (VP of Strategic Robotics).

FIRST Robotics Competition (FRC) Team 254, The Cheesy Poofs Sept 2021–Jun 2025
Technical Lead *San Jose, CA*

- Led a 60+ member team through the full engineering lifecycle of a 115lb competition robot from design architecture, prototyping, detailed design, fabrication, assembly, testing, and rapid iteration.
- Delivered a high-performance robot that won the 2022 World Championship and placed top 5 globally in 2022-2025.
- Oversaw and designed critical subsystems, applying principles of robustness, material selection, and serviceability to ensure durability under high-load impacts and rapid repair cycles.
- Coordinated electrical system design and implementation using industrial sensors and CAN FD protocols, prioritizing reliability and failure mitigation under competition stress.
- Managed subteam integration and project execution, establishing deadlines and enforcing accountability to achieve both short-term deliverables and long-term project success.

PROJECTS & EXTRACURRICULARS

WPI Combat Robotics - *Secretary (July 2026 - Present); Builder (Aug 2025 - Present)*

- Designed and built 1lb and 3lb robots (Clankatron, Stardust) for combat robotics competitions (event winner).
- Engineered a high-energy weapon system reaching 300+ mph tip speed at 24,000 RPM, sizing weapon geometry and rotating mass from first principles to maximize kinetic energy within strict weight-class limits.
- Applied FEA to weight-optimize impact and load-bearing parts. Integrated energy-absorbing plastics at impact interfaces, balancing survivability against mass to protect robots under repeated hits.
- Machined 3D-contoured aluminum parts in-house from CAM toolpaths and specified hardened-steel blades for outsourced manufacturing, applying DFM for manufacturability cost and fast field repair.
- Elected secretary as the only sophomore on an executive board of juniors and seniors. Managed internal operations of a 270+ member student organization including scheduling, record keeping, and communication.

EDUCATION

Worcester Polytechnic Institute Expected May 2029
Mechanical Engineering (BS) - Presidential Scholar *Worcester, MA*