

Jacob Benjamin

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EDUCATION

University of Central Florida, Orlando

M.S in Mechanical Engineering

B.S in Mechanical Engineering, Minor in Computer Science

May 2027

August 2025

WORK EXPERIENCE

NASA, Mechanical Engineer

January 2026 – present

EP5 – Power Systems Branch

August 2026 – present

- Designing **enclosures in CREO** for electrical prototypes, evaluating bend radii, strain relief, and ingress sealing.
- Developing battery test hardware and **thermal simulations** to evaluate and study **battery thermal runaway**.
- Characterizing **USB-C connector signal** under vibration and thermal cycling; designing fixtures for mate/de-mate.

EC2 – Design and Analysis Branch

January 2026 – August 2026

- Owned the **end-to-end** development of deployable solar panels for **R5 CubeSat** under strict **packaging constraints**.
- Applied **first principles hand calculations** to pin-joint load paths to overcome **0.4 lbf friction** with low energy density.
- Evaluated designs and **soft goods materials** for lunar weight, thermal, and dust tolerance ahead of **Artemis 4 & 5**.
- Utilized **CREO Windchill PLM** to manage daily CAD updates based on design sensitivities across cross-functional team.
- Led ISS **material corrosion** review; cast **30+ RTV630** silicone samples with **99%-dimensional accuracy** across batches.
- Conducted **optical microscopy** and **shore hardness tests** to evaluate mechanical properties of material samples.

SharkNinja, Product Design Engineering Co-op

August 2025 – December 2025

- Designed an anti-scratch **injection-molded** PCTG vessel for the **Ninja SLUSHi** using **SOLIDWORKS** to model features.
- Drove a **tooling change** to mating surfaces with **ASME Y14.5 GD&T**; improved sealing and **cut unit leakage by 90%**.
- Partnered with **Industrial Design, NPI, and China teams** to resolve issues and scale **FAI builds** to MP (**1M+ units/year**).
- **Owned** cooling workstream; validated 6V PWM fan spec and **drove ECO** for new fan and **PCBA update with EE team**.
- Simulated **NVH in ANSYS** and used **CT scans** to resolve gearbox-housing interference and cut acoustic noise by **4 dB**.
- **Applied DFM/A** and **RSS tolerance analysis** to ensure precise **FPC alignment** within front panel enclosure assembly.

Hunter Industries, Mechanical Engineering Intern

June 2025 – August 2025

- Utilized **CREO** to redesign bracket for **LDN sprinkler** for mass production (**50K+ units**) to reduce torsional deformation.
- Analyzed **15+** designs using **DOE** and **SOLIDWORKS FEA** to simulate torque, giving a **32% reduction** in max stress.
- Prototyped **5** models using **SLA printing** and **CNC machined 304 SS test fixtures** to validate torsional resistance.
- Used **DFM** to design **injection-molded** plastic and stamped metal parts and **DFA** to fit within assembly-line tooling.
- Delivered **GD&T** drawings, using **SPC** in **JMP** and MicroVu CMMs to mark tolerances and **CTQ features** for reliability.

Additional Engineering Experience

- **WEAR Laboratory, Mechanical Research Assistant** May 2024 – May 2025
- **Universal Creative, Mechanical Engineering Intern** January 2024 – April 2024
- **Limbitless Solutions, Mechanical Engineering Intern** May 2023 – August 2023

TECHNICAL SKILLS & CERTIFICATIONS

Design: SolidWorks [**CSWP**], CREO, Windchill, NX, Fusion360, FEA/CFD (ANSYS), KICAD, Python, MATLAB, Arduino, DOE, JMP.

Manufacturing: GD&T, Tolerance Analysis, Rapid Prototyping, 3D Printing, CNC, Drawings, Materials (plastics, metals, etc.)