Kenji Sakaie

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Education

Olin College of Engineering, Needham, MA- Bachelor of Science in Mechanical Engineering May 2027

Relevant Coursework: Multivariable calculus, linear algebra, ODEs, computer modeling, software design, mechanical prototyping, statics, dynamics, controls, fluids, thermodynamics

Software: NX, SolidWorks, ANSYS, OnShape, C++, Python, FANUC, Syteline, Excel, MATLAB, KiCad

Tool skills: Manual machining (lathe, mill, bench grinder, band saw), CNC machining, MIG, TIG, composites fabrication, soldering, carpentry, woodworking, 3D Printing

Experience

Space Exploration Technologies - Engineering Intern September 2025-December 2025

- Developed ground support hardware for Falcon 9 rocket and payloads

The Boring Company - Mechanical Engineering Intern May 2025-August 2025

- Owned guarding and cable routing parts for the electrical substation of a tunnel boring machine from conceptualization to testing phase
- Designed spreader bar rated to 13 tons for moving and installing substation with a forklift or crane
- Modeled dehumidification of air in the substation's cooling system

Green Mountain Technologies - Student Researcher January 2025-May 2025

- Designed an in-vessel composting machine, integrated biological systems for aerobic composting with novel mechanical agitation methods and a forced air ventilation system

Jergens, Inc - Manufacturing Engineering Intern June- August 2023

- Designed and tested crimping dies and guarding to accelerate t-handle pin assembly
- Performed time studies and analyzed floorplans to accelerate stock cutting and machining workflows
- Conducted cost analysis and uncovered $60,000 in savings on fastener sourcing using **Syteline**

Olin Rocketry - Structures Team Lead September 2023-May 2025

- Performed aerodynamic loading analysis to design lead screw and materials for control surfaces using hand calculations and **ANSYS FEA** to pave the way for actively controllable rockets
- Design and built airbrakes based on CFD testing results balanced with my DFM experience
- Designed built and tested solid rocket motors based on thermodynamics and chemistry principles
- Created test stand for testing and data collection on experimental solid rocket motors

RC Bicopter - Mechanical Design October 2024- December 2024

- Built a robust, crash resistant and stable mechanical design for a twin-rotor RC-aircraft over the course of six weeks as part of a team of four students
- Modeled stability, kinematics, and thrust characteristics to inform the creation of flight controller software and choose optimal components

Pulse Jet - Personal Project January 2024-Present

- Working independently to design, build and test a 300N thrust valved pulse jet based on first principles combustion concepts, designed engine in **SolidWorks CAD**
- Chose materials capable of withstanding high hoop stress, resonance, and heat

K-Scale Labs - Technical Intern May 2024-August 2024

- Designed complete humanoid robots for faster mass manufacturing in sheet metal and 3D printing
- Prototyped and revised robots for price, reliability, industrial design aesthetics, and ease of assembly
- Designed an aesthetically pleasing head as an electronics enclosure for with a speaker and vibration insulated directional microphone systems using first principles acoustic analysis and electronics design