

Kai Yoshida

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Portfolio: <https://kaisyoshida.wixsite.com/kai-yoshida>

PROFESSIONAL EXPERIENCE

SharkNinja, Needham, MA

July - December 2025

New Product Development Engineer

- Developed a bi-directional vacuum nozzle concept to achieve 2x efficiency for debris pickup in response to upcoming EU eco regulations
- Designed a motion-actuated valve mechanism through iterative prototyping, balancing manufacturability and user constraints to eliminate downstream failure modes
- Collaborated with R&D to adapt SOP test procedures, validating nozzle design performance under simulated EU test conditions
- Gained hands-on understanding of Plastic Injection Molding principles of core/cavity design, parting lines, slides, ejection pins, and injector gate placement
- Conducted controlled variable testing to identify critical design parameters and performance limits

MASCON, Woburn, MA

July - December 2024

Quality Engineer

- Inspected precision OEM parts to 20-micron tolerances using CMM and optical comparator, verifying GD&T compliance for aerospace and medical components
 - Reviewed engineering drawings to provide manufacturing quotes and recommend DFM improvements, reducing machining complexity and cost risk
 - Developed fundamentals in machining and manufacturing processes for aluminum and steel parts.
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SKILLS

Computer apps and programming: SolidWorks (CWSA), CREO, OnShape, MATLAB, AutoCAD, Excel, Arduino

Hands-on skills: 3D Printer, Laser Cutter, CMM, Optical Comparator, Height Gauge, Profilometer

EDUCATION

Northeastern University, Boston, MA

Master of Science in Mechanical Engineering with Concentration in Mechatronics

December 2027

Bachelor of Science in Mechanical Engineering and Design (Experience Design), GPA: 3.67

May 2026

Courses: Dynamics, System Analysis and Control, Measurements & Analysis, Mechanical Engineering Design, Fluid Mechanics, Material Science, Thermodynamics, Statics, Mechanics of Materials; Experience Design I

Activities: American Society of Mechanical Engineers, NU Robotics, Japanese Student Association

PROJECTS

Rotating Particle Receiver for Concentrated Solar Power, Boston, MA

January - April 2026

Capstone II Project

- Designed rotating subassembly (bearings, bevel gears, motor mount) for particle-based solar receiver, meeting seal strength, motor stability, and high-temperature durability requirements to maximize heat transfer efficiency
- Performed fluids and heat transfer analysis in MATLAB to validate coiled copper tube geometry for thermal efficiency
- Developed an in-house copper helical coil fabrication method using a sand-packing and heat-bending technique, eliminating a \$700-800 vendor cost

Robotic Arm Project, Boston, MA

January - April 2025

Personal Project

- Prototyped a fully 3D-printed Arduino five-axis robotic arm using SolidWorks
- Optimized movement mechanics through multiple design iterations, achieving smoother and more efficient articulation.
- Developed an intuitive control system by linking potentiometers to servo motors, enabling seamless and user-friendly arm manipulation.