

KATIE KOSTAK

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EDUCATION

Tufts University

Sept. 2022 – May 2026

B.S. in Mechanical Engineering - *magna cum laude*

Medford, MA

Courses: Thermodynamics, Materials & Manufacturing, Static & Dynamic Mechanics, Data Structures, Robotics

Clubs: Symphony Orchestra, Club Tennis, Robotics Club, Tufts FOCUS

EXPERIENCE

Lumafield

Jun. 2026 – Present

R&D Intern; Process Engineering

Cambridge, MA

- Developed a nonlinear correction model for flat-panel detectors to substantially reduce ring artifacts in reconstructed CT volumes, currently being integrated into production
- Characterized lag in X-ray detectors to develop correction algorithm for lag & ghosting artifacts

Bose Corporation

Jan. 2026 – May 2026

Competitive Intelligence Technical Analyst Co-op

Framingham, MA

- Evaluated performance of product design innovations in audio electronics, led cross-functional hardware research initiatives, and presented findings across R&D
- Designed Instron test fixtures to experimentally evaluate material response in prototypes

Nemitz Robotics Group

Jan. 2025 – Dec. 2025

Undergraduate Research Intern; Systems Integration Engineering

Medford, MA

- Designed electro-mechanical fixtures to support integration of multi-material pellet extrusion & deposition systems
- Experimentally characterized material properties for pellet-based 3D printer targeting fabrication of ultra-soft devices

NCKU Metal 3D Printing Lab

May. 2025 – Aug. 2025

Undergraduate Researcher; Laser Drilling Simulations Under Prof. Yu-Lung Lo

Tainan, Taiwan

- Designed and validated a laser drilling simulation on semiconductor materials using COMSOL Multiphysics
- Utilized a full factorial design to experimentally define optimal laser drilling parameters on Aluminum Nitride
- Collected experimental data, analyzed trends, and summarized findings using MATLAB

PUBLICATIONS & PROJECTS

"Pellet Printing for Soft Robotic Devices" - *Advanced Science*

Mar. 2026

Wu, Y., Chen, J.-H., Olivares, A., Kostak, K., Pedicone, S., Kendre, S. V., and Nemitz, M. P.

- <https://doi.org/10.1002/advs.202524237>
- Iteratively designed an ultra-soft, pneumatically-actuated robotic hand to achieve compliant motion and demonstrate the pellet printer's high-resolution capabilities

Reverse Kinematics Drawing Robot

Mar. 2026

- Designed, prototyped, and programmed a 5-bar drawing robot that utilizes inverse kinematics to derive end effector points using Raspberry Pi
- Simulated kinematics using MATLAB, and troubleshooted deflection and stall torque issues

LEADERSHIP EXPERIENCE

Tufts University, Tisch College of Civic Life

Jan. 2024 – Dec. 2024

Tufts FOCUS Pre-Orientation; Coordinator

Medford, MA

- Collaborated in a team of 3 to design and execute a 5-day community service & social change program for 180 first-year students and 75 staff in the greater Boston area
- Coordinated with university staff and 50+ community partners to ensure an efficient workflow
- Developed detailed documentation to streamline future program operations

SKILLS

Software and Programming Languages: SolidWorks, Fusion360, MATLAB, Python, GitHub, Stress Analysis, Finite Element Analysis (FEA), COMSOL Multiphysics, Google Suite, Microsoft Office, KiCad, LabView, Siemens NX, Cursor

Technical Skills: Laser Cutting, Waterjetting, Injection Molding, 3D Printing, Rapid Prototyping, Instron