

Angelica Knudsen

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EDUCATION

Massachusetts Institute of Technology (MIT)

Candidate for Bachelor of Science, Mechanical Engineering and Physics

Cumulative GPA: 4.5/5.0

Coursework (including courses I'll take in current school year):

- Mechanical Engineering: Mechanics and Materials I, Dynamics and Control I&II, Thermal-fluids Engineering I&II, Numerical Computation in MATLAB, Designing for the Future, Electronics for Mechanical Systems
- Physics: Classical Mechanics, Electricity and Magnetism, Waves and Vibrations, Quantum Physics I, Statistical Physics, Special Relativity, Physics of Energy

Cambridge, MA

Expected May 2026

EXPERIENCE

MIT Department of Mechanical Engineering

Incoming SuperUROP Researcher at Hatsopoulos Microfluids Laboratory

- Using contact angle goniometer to measure static contact angle of water drop on feathers of ruby-throated hummingbird
- Using optical microscopy and scanning electron microscopy to assess hierarchical structure of barbes, barbules, and hooklets of iridescent and non-iridescent feathers
- Synthetically reconstructing feathers using glass capillaries to compare properties with those of hummingbird feathers

Cambridge, MA

Sep 2024 – Present

MIT Department of Physics

Incoming 8.01 (Classical Mechanics) Undergraduate Teaching Assistant

8.02 (Electricity and Magnetism) Undergraduate Teaching Assistant

New York, NY

Sep 2024 – Present

Feb 2024 – May 2024

MIT Sea Grant

Student Researcher on Coastal Acidification on the Gulf of Maine

- Researched calibration methods and established SOPs for Manta +35, Hanna, and YSI Castaway sensors
- Visited oyster nurseries and farms and deployed sensors for weeks at a time
- Processed and graphed data using Python onto user interface

Cambridge, MA

Aug 2024 – Present

PROJECTS

Yarn Winder

- Built entirely out of scavenged parts within 1 week (total cost: \$0)
- Included acrylic gears and plywood base laser cut from scraps

Aug 2024

Modular Water Collector for Drone - Proof of Concept Class Project

- Collaborated to build peristaltic pump on gear-bearing revolver to suck in and empty water into 8 100mL test tubes
- Used CAD to laser cut and 3D print gear bearing revolver and test tube holder
- Designed system to attach to feet of drones with sufficient weight-carrying capacity

Apr 2023 – May 2023

Ladder Climbing Robot for Activities Showcase

- Collaborated with other members of MIT Robotics Team to build robot
- Designed a hinging mechanism that smoothly glides over and snaps onto rungs of ladder using rubber bands

Feb 2023 – May 2023

ACTIVITIES

MIT Robotics Team

Mechanical Engineering Subteam Member

Cambridge, MA

Feb 2023 – May 2023

ADDITIONAL

Languages: Python, MATLAB, C++, HTML/CSS

Manufacturing: Laser Cutter, Mill, Bandsaw, Drill Press, 3D printer (Used Prusa, Creality, Bambu, and MakerBot), Soldering

CAD: Autodesk Fusion 360, Rhino, SOLIDWORKS

Awards: 2022 VEX Robotics ND State Champion and Worlds Qualifier, 2022 U.S. Presidential Scholar Semifinalist, 2021 FBLA Cybersecurity State Champion