

Audrey Cui

audcui@mit.edu | portfolio: <https://audreycui.github.io/>

EDUCATION

Massachusetts Institute of Technology

MS in Mechanical Engineering

BS in Computer Science

GPA 4.9/5.0

Cambridge, MA

expected May 2025

May 2024

- **Select Coursework:** Mechatronics (grad), Medical Device Design (grad), Underactuated Robotics (grad), Dynamics & Controls (grad), Design & Manufacturing I & II, Mechanics & Materials I, Electronics for Mechanical Systems I & II, Microcomputer Lab, Machine Learning, Emergent Computations in Neural Circuits, Algorithms, Signal Processing, Probability & Random Variables, Differential Equations, Linear Algebra

EXPERIENCE

Tadesse Lab Graduate Research Assistant

Sep 2023 - present

- Working in the Tadesse Lab on optical medical diagnostic devices for point of care deployment
- Designing a miniaturized, portable Raman spectrometer for continuous biomarker monitoring
- Designing hardware stack for a high-throughput Raman spectroscopy platform, integrating multiple mechanical and electrical systems using custom firmware, embedded Linux, & custom PCBs
- Advising four undergraduate research assistants across high throughput submodule development

Additive Manufacturing Curriculum Engineer

Sep 2024 - present

- Creating online professional development course content for the MIT xPro Additive Manufacturing course

NVIDIA | Bioinformatics Intern

May 2022 - Aug 2022

- Designed, implemented, and benchmarked semi supervised learning frameworks to improve transformer model performance on downstream molecular property prediction tasks

MIT CSAIL Undergraduate Research Assistant

Sep 2020 - Jun 2022

Local Relighting of Real Scenes - <https://arxiv.org/abs/2207.02774>

Paint by Word - <https://arxiv.org/abs/2103.10951>

- Worked in the Torralba Lab on generative adversarial network (GAN) inversion, understanding GAN image synthesis behavior & feature representation, dataset generation, and image relighting
- First-authored paper on local image relighting
- Co-authored paper on zero shot image manipulation

MIT 2.678 & 2.679 (Electronics for Mechanical Systems I&II) TA

Sep 2023 - May 2024

- Taught intro electronics courses for MechE undergrads, covering circuit analysis/design, bench equipment use, transistors, computer vision, microcontrollers, signal processing, PCB design

Other Teaching

MIT Cascade: Co-taught weekly electronics & microcontroller classes to local Boston area high school students using an original curriculum inspired by MIT's 2.678 course

Oct 2023 - Nov 2023

6.003 (Signal Processing) Lab Assistant: Taught signal processing during office hours

Sep 2022 - May 2023

MIT-Wales Global Teaching Labs: Taught Welsh secondary students how to make a car robot using an original curriculum covering Solidworks CAD, 3D printing, breadboarding, & Arduino programming

Jan 2023

SKILLS - see portfolio <https://audreycui.github.io/>

Mechanical & Design: CAD (Fusion360 & Solidworks), CAM (Fusion360), CNC Milling, Manual Mill & Lathe. Waterjet, MIG/TIG welding, FDM/SLA 3D printing, Lasercutter, Adobe Illustrator & Photoshop

Electronics & Hardware: PCB design (Kicad), PCB milling, 8051 & RISC-V Assembly, C, Arduino, Raspberry Pi, PSOC, Oscilloscope

Machine Learning & Software: Pytorch, Tensorflow, Python, Java, HTML/CSS/JS, Matlab, Drake, Numpy, Docker, Git

HONORS

2024 Martin Departmental Fellowship recipient | 2021 NCWIT Collegiate Award Finalist | 2020 Society of Women Engineers Scholarship Recipient | 2020 Equitable Excellence Scholarship Recipient | 2019 MIT THINK Scholars Finalist & overall 2nd place winner | 2018 & 2019 USA Biology Olympiad Top 50 | 2018 AIME Qualifier