

ISABELLA YU

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EDUCATION

Massachusetts Institute of Technology

MEng in Electrical Engineering and Computer Science

Expected September 2024 - May 2025

Massachusetts Institute of Technology

B.S. in Electrical Engineering & Computer Science

B.S. in Mathematics

Minor in Comparative Media Studies

Overall GPA: 5.0/5.0

September 2020 - May 2024

Relevant coursework: Computer Vision (grad), Machine Learning for Inverse Graphics (grad), Robotic Manipulation (grad), Algorithms I and II, Computational Cognitive Science, Theory of Computation, Abstract Algebra

PUBLICATIONS

Andrei Atanov*, Jiawei Fu*, Rishubh Singh*, **Isabella Yu**, Andrew Spielberg, Amir Zamir, “[Solving Vision Tasks with Simple Photoreceptors instead of Cameras](#)”, accepted as poster to ECCV 2024, Milan, Italy, Sep 29-Oct 4, 2024

Kristine Zheng* and **Isabella Yu***, “[Jenga as a performance art: computational generation of surprisingly stable structures](#)”, MIT Undergraduate Research and Technology Conference, Cambridge, MA, Oct 6, 2023

* denotes equal authorship

WORKSHOP AND TUTORIAL ORGANIZATION

Amir Zamir, Andrew Spielberg, Andrei Atanov, Jiawei Fu*, **Isabella Yu***, “[Computational Design of Diverse Morphologies and Sensors for Vision and Robotics](#)”, CVPR 2024, Seattle, WA, Jun 17-21, 2024

* student helper

RESEARCH EXPERIENCE

MIT Scene Representation Group

Research assistant

February 2024 - present

- Advisor: Vincent Sitzmann, with Lester Li and Ana Dodik
- Developing methods for learning the dynamics of contact-rich manipulation from vision and unstructured exploration.
- Developing methods for 3D inverse rendering of Escherian “impossible” objects. [Implementation here](#)

EPFL Visual Intelligence Laboratory

Research Intern

June 2023 - June 2024

- Advisor: Amir Zamir, with Andrei Atanov
- Designed and ran experiments for novel reinforcement-learning based methods for computational design of robot sensor morphologies. Integrated PyTorch3D differentiable renderer to enable a fully differentiable optimization pipeline. Ran experiments in the Habitat Simulator to optimize sensor placement for target navigation. Conducted survey to compare intuitive human sensor designs to computationally generated designs. Tutorial in [CVPR 2024](#) and publication in submission to [ECCV 2024](#).

MIT Distributed Robotics Laboratory

Research Assistant

May 2021 - Aug 2021

- Advisor: Daniela Rus, with Noam Buckman
- Deployed state-of-the-art 3D object detection and lane detection algorithms on scaled autonomous cars, enabling accurate real-world simulation of multi-car interaction. Covered in [Mashable](#).

MIT Personal Robotics Group

September 2020 - May 2021

Research Assistant

- Advisor: Cynthia Breazeal, with Sharifa Alghowinem
- Developed novel multi-modal deep learning models for suicide risk classification.

INDUSTRY EXPERIENCE

Robotics/Autonomous Vehicles Software Engineering Intern at **NVIDIA** (Summer 2024) and **Lawrence Livermore National Laboratory** (Summer 2022), Design Technologist intern at **Amazon** (January 2024).

TECHNICAL SKILLS

Programming Languages Python, C++, GLSL, Javascript, Java, Lisp
Libraries & Tools PyTorch, NumPy, ROS, OpenCV, Git, Linux, Slurm, Blender

PROJECTS

Belief space planning for robotic manipulation Fall 2022

- Implemented Platt et al.'s belief space planning algorithm in the Drake simulator. [Implementation here](#).

AWARDS AND HONORS

Phi Beta Kappa Inductee	2024
Andy Grove Scholarship	2022
National Merit Finalist	2020
USA Biology Olympiad Top 50	2019

TEACHING

Teaching Assistant, <i>MIT 6.7960: Deep Learning (Graduate)</i>	Fall 2024
Lab Assistant, <i>MIT 6.3900: Introduction to Machine Learning</i>	Fall 2023 - Spring 2024
Grader, <i>MIT 6.3000: Signal processing</i>	Spring 2023

ACTIVITIES AND COMMUNITY SERVICE

President, MIT Filmmakers Association September 2023 - Present

- Organize film production workshops, film screenings, and fund innovative film projects for the MIT community. Led the Legal and Ethics panel of the 2nd AI for Filmmaking hackathon; moderated a discussion among 100+ hackathon participants about ethical considerations surrounding current generative AI systems.

Member, MIT AI Alignment September 2023 - present

- Participant in research-oriented reading group on technical AI safety. Topics include neural network interpretability, learning from human feedback, and potential catastrophic risks from advanced AI systems.

Film Director and Artist, MIT Admissions September 2022 - Present

- Directed and produced MIT's 2024 Pi Day video (200K+ views on YouTube/Instagram) and the 2023 animated Pi Day video (80K+ views on YouTube/Instagram). Create comics, videos, and livestreams for MIT's social media accounts.

MIT Project Manus Makerspace Mentor September 2021 - Present

- Lead workshops in 3D printing, laser cutting, and MIG welding. Mentor students on personal projects.