

Ethan Chun

 (650) 961-1911 |  elchun@mit.edu |  elchun |  Projects

EDUCATION

Massachusetts Institute of Technology

Cambridge, Massachusetts

Candidate for Bachelor of Science in Computation and Cognition (Course 6-9)

2020 – 2024

GPA: 5.0 / 5.0

PUBLICATIONS

- [1] **E. Chun**, Y. Du, A. Simeonov, T. Lozano-Perez, and L. Kaelbling, “Local neural descriptor fields: Locally conditioned object representations for manipulation,” *2023 IEEE International Conference on Robotics and Automation (ICRA)*, 2023, submitted.
- [2] T. Shu, C. Shallal, **E. Chun**, A. Shah, A. Bu, D. Levine, S. H. Yeon, M. Carney, H. Song, T.-H. Hsieh, and H. M. Herr, “Modulation of prosthetic ankle plantarflexion through direct myoelectric control of a subject-optimized neuromuscular model,” *IEEE Robotics and Automation Letters*, 2022.

EXPERIENCE

Learning and Intelligent Systems — Dr. Tomás Lozano-Pérez and Dr. Leslie Pack Kaelbling

Cambridge, Massachusetts

Undergraduate Research Assistant

Dec. 2021 — Present

- Used Pytorch, Pybullet, and a Franka Panda robot to enable robust robotic grasping of household objects with Neural Descriptor Fields (NDF) and Convolutional Occupancy Networks in simulation and the real world.
- Demonstrated two-fold increase in task success rate with novel convolutional NDF architecture, and optimization procedure.
- Designed distance-based contrastive loss function to enforce SE(3) equivariance on networks utilizing local descriptor fields.

Biomechatronics Group — Dr. Hugh Herr

Cambridge, Massachusetts

Undergraduate Research Assistant

Mar. 2021 — Present

- Utilized a novel EMG control paradigm and custom powered prosthetic to restore natural gait biomechanics for a unilateral transtibial amputee and several unilateral transfemoral amputees.
- Implemented robotics control stack in C++, including communications drivers (I2C, SPI, CAN) and integrated logger.
- Utilized the Linux terminal and Docker containers to deploy and run robotics stack.
- Ran level ground, stair climbing, sit-to-stand, and static calf raise trials of robotics system over extensive testing periods.
- Designed and fabricated robot components, including prosthetic mounting adapters, electronics mounts and heatsinks.

MIT Course 6.036: Intro to Machine Learning

Cambridge, Massachusetts

Lab Assistant

Fall 2021 — Spring 2022

- Taught students core machine learning concepts during weekly office hour sessions.
- Built and evaluated students’ understanding of current course concepts during weekly lab sessions.

ELC Machine Works

Palo Alto, California

Founder and Head Machinist

2016 — 2020

- Designed, prototyped, and built various projects in self-run garage machine shop.
- Designed and manufactured parts for Kuprion Inc., including a chemical reactor motor mount and settling tank mixer mount.
- Repaired and converted formerly nonfunctional YCM Supermax vertical milling machine into a 3-axis CNC mill.

FIRST Robotics Team 6036

Palo Alto, California

Design Lead and Build Captain

2018 — 2020

- Lead the design of two-time award winning robot during the 2019 FIRST Robotics season.
- Lead a team of students to manufacture and assemble the 2019 and 2020 robots at self-run garage machine shop.
- Supported the growth and development of team members by organizing and facilitating summer build member trainings and working to understand the individual needs of each team member.

SKILLS

Tools

PyTorch, Numpy, Pybullet, MATLAB, Git, Embedded Linux, Docker, SolidWorks

Languages

Python, TypeScript, C++

Relevant Coursework

Algorithms, Machine Learning, Real Analysis, Abstract Algebra, Probability Theory

ACTIVITIES

BattleCode

Spring 2022

MIT Solar Electric Vehicle Team (1st place in 2021)

Fall 2020 — Spring 2022