Ethan Chun

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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] 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, submitted.

Experience

Biomechatronics Group — Dr. Hugh Herr — Cambridge, Massachusetts
Undergraduate Research Assistant — *Mar. 2021 — Present*

- Helped restore natural gait biomechanics for a unilateral transtibial amputee using a powered prosthetic ankle and novel EMG based control paradigm.
- 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.
- Modified Linux device trees to successfully install Linux distribution on embedded robot controller.
- Ran level ground and static calf raise trials of robotics system over a two week testing period.
- Designed and fabricated robot components including electronics mounts, heatsinks, and wiring harnesses.

Learning and Intelligent Systems — Dr. Tomás Lozano-Pérez and Dr. Leslie Pack Kaelbling — Cambridge, Massachusetts
Undergraduate Research Assistant — *Dec. 2021 — Present*

- Enabled robust grasping of household objects using Neural Descriptor Fields with Convolutional Occupancy Networks.
- Used Pytorch to augment Neural Descriptor Fields (NDFs) with predicted 3D occupancy values to determine optimal grasp location.
- Ran evaluations of Neural Descriptor Field codebase with Franka Panda robot in Pybullet simulation on a remote server.

MIT Course 6.036: Intro to Machine Learning — Cambridge, Massachusetts
Lab Assistant — *Fall 2021 — Present*

- Helped students understand 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, reagent dispenser 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 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

Languages Python, C++, TypeScript
Tools PyTorch, Numpy, MATLAB, Git, Embedded Linux, Docker, SolidWorks

Activities

BattleCode — Spring 2022
MIT Solar Electric Vehicle Team — Fall 2020 — Spring 2022