

Christopher Chang

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EDUCATION

Carnegie Mellon University

Sep 2019 – Aug 2024 | Pittsburgh, PA

Master of Science in Robotics | Overall GPA: 3.93/4.0

Relevant Coursework: Mathematical Foundations of Robotics, Mechanics of Manipulation, Medical Robotics, Robot Learning, Robot SLAM, Sensors and Sensing, Computer Systems

Bachelor of Science in Mechanical Engineering, Robotics Minor | Overall GPA: 4.0/4.0

Relevant Coursework: Computer Vision, Feedback Controls, Mechatronic Design, Mobile Robot Algorithms Lab

EXPERIENCE

Edulis Therapeutics | Lead Device Engineer

Sep 2023 – Aug 2024 | Pittsburgh, PA

- Invented a novel dual-catheter endoscopic syringe design for submucosal drug delivery (CMU spin out)
- Iterated from concept design to prototype and device is currently deployed to animal testing trials
- U.S. Provisional Patent Application No. 63/567,754. Filed March 20, 2024. (Co-patent holder)

Carnegie Robotics | Software Engineering Intern

Jun 2023 – Aug 2023 | Pittsburgh, PA

- Deployed a teleop control interface to a 6-DOF hydraulic boom using ARK/C++ making controls easy and intuitive
- Developed a robust ML perception system with OpenCV and PyTorch to detect and localize mining vehicles
- Built a training, deployment, and evaluation pipeline for Large Language Models via HuggingFace. Model is used internally for code completion and database search within a 200-member company

Ekso Bionics | Mechanical Engineering Intern

May 2022 – Aug 2022 | Berkeley, CA

- Created an ergonomic analysis tool with OpenCV to guide user experience improvements to padding
- Restored legacy STM firmware to enable tactile feedback controls in a medical rehab exosuit
- Produced custom tooling and jigs improving the efficiency of in-house industrial exosuit assembly

RESEARCH

ZoomLab | CMU Robotics Institute | *Master's Thesis*

Sep 2023 – Aug 2024 | Pittsburgh, PA

- Prototyped a wireless mechatronic end effector for manufacturing assembly tasks using ESP32/C++
- Programmed a ROS based manipulation package leveraging tactile and vibrational feedback using Python
- Trained a PyTorch audio contact classification model for part connection tasks with 95% accuracy
- Designed PCB electronics for power distribution and motor controls with EasyEda

MoonRanger | Research Assistant, CMU Robotics Institute

Jan 2021 – May 2022 | Pittsburgh, PA

- Developed highly engineered flight hardware for a moon rover launch in partnership with NASA
- Produced detailed GD&T engineering drawings for outsourced and in-house manufacturing
- Designed and CNC machined mechanical parts using Solidworks CAD/CAM

Zooniverse | Research Assistant, UMN Physics & Astronomy

Jun 2020 – Aug 2020 | Minneapolis, MN

- Experimented with CNN architectures to detect supernovae from telescope images with TensorFlow
- Expanded training dataset to improve machine classifier performance by 30%

PROJECTS & LEADERSHIP

Induction Casting Machine | Capstone Design Project

Spring 2022 – Spring 2023 | Pittsburgh, PA

- Learned electrical design principles of high-power induction stoves and resonance circuitry
- Won the "Shark Tank" award for best pitch and most commercially viable project

Sigma Phi Epsilon Booth | Room Chairman

Spring 2022 – Spring 2023 | Pittsburgh, PA

- Led a 7-person team to build an interactive room in CMU's annual booth competition (Won 2022, 2023)

SKILLS

Programming: (*Languages*) Python, C++, C, Matlab. (*Packages*) Detectron2, Torch, ROS/ARK, HuggingFace/LLM, Mujoco
Software: Git, Docker, Ubuntu/x86 Linux

Mechanical: CAD (Solidworks), CNC Machining, FEA (Solidworks CAM/ANSYS), 3D Printing, Composites

Electrical: PCB (EasyEda/JLC PCB), Arduino, ESP32, STM, Soldering, Filter Design, Signal Transduction