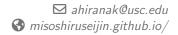
Ayano Hiranaka

Curriculum Vitae



Research Interests

My research interest lies in developing robots that communicate and collaborate effectively with humans to increase the quality of human lives, while also evolving alongside humans. I am passionate to develop robots with human-like, generalizable understanding of the world, ability to learn through human interactions, versatile manipulation and mobility capabilities, and safe and friendly behaviors.

Education

2024-current PhD in Computer Science, University of Southern California

2021–2023 MS in Mechanical Engineering, Stanford University

GPA: 4.02/4.30

2016–2019 BS in Mechanical Engineering, University of Illinois at Urbana-Champaign

GPA: 3.98/4.00, Graduation with Highest Honors

Conference Publications

*: denotes equal contribution, †: denotes equal contribution, alphabetically ordered

paper HERO: Human-Feedback-Efficient Reinforcement Learning for Online Diffusion Model Finetuning

website Ayano Hiranaka*, Shang-Fu Chen*, Chieh-Hsin Lai*, Dongjun Kim, Naoki Murata, Takashi Shibuya, Wei-Hsiang Liao, Shao-Hua Sun**, Yuki Mitsufuji**

International Conference on Learning Representations (ICLR), 2025

paper NOIR: Neural Signal Operated Intelligent Robots for Everyday Activities

website Ruohan Zhang*, Sharon Lee*, Minjune Hwang*, **Ayano Hiranaka***, Chen Wang, Wensi Ai, Jin Jie Ryan Tan, Shreya Gupta, Yilun Hao, Gabrael Levine, Ruohan Gao, Anthony Norcia, Li Fei-Fei, Jiajun Wu

Conference on Robot Learning (CoRL), 2023

paper Primitive Skill-based Robot Learning from Human Evaluative Feedback

website **Ayano Hiranaka**[†], Minjune Hwang[†], Sharon Lee, Chen Wang, Li Fei-Fei, Jiajun Wu, Ruohan Zhang

International Conference on Intelligent Robots and Systems (IROS), 2023

paper A Dual Representation Framework for Robot Learning with Human Guidance

website Ruohan Zhang*, Dhruva Bansal*, Yilun Hao*, **Ayano Hiranaka**, Jialu Gao, Chen Wang, Roberto Martin-Martin, Li Fei-Fei, Jiajun Wu

Conference on Robot Learning (CoRL), 2022

Best paper award at Aligning Robot Representations with Humans workshop

Research Experiences

Dec 2023 - Sony Al Deep Generative Model Team Research Intern

Nov 2024 Sony AI (Tokyo, Japan)

- Investigating human-feedback-efficient RLHF algorithm for text-to-image diffusion model finetuning
- Algorithm can train a model for various tasks while simultaneously capturing human preference

Mar 2021 - Stanford Vision and Learning Lab Graduate Research Assistant

Dec 2023 Stanford University (Stanford CA, USA)

- O Led real robot experiments in multiple human-robot collaboration projects
- Experience with a wide array of physical robots, including mobile manipulators (Sawyer, Franka, TIAGo)
- Experiences in human-in-the-loop robot learning, reinforcement learning, imitation learning, motion planning, brain-robot-interface

Sep 2019 - Machine Tool Systems Research Lab Undergraduate Researcher

Dec 2019 University of Illinois at Urbana-Champaign (Champaign IL, USA)

- Investigated the effect of atomization-based cutting fluid (ACF) spray angle and distance on tool life during micro-drilling operations
- O Developed a program to automatically record drill measurements from images

Sep 2018 - Mehta Research Group Undergraduate Researcher

Jun 2019 University of Illinois at Urbana-Champaign (Champaign IL, USA)

 Developed an adaptive particle filter algorithm for real-time identification of piano note pitch (change in pitch identified within 0.25 sec)

Teaching Experiences

Winter 2022 ENGR 110/210: Perspectives in Assistive Technology, Stanford University

Graduate Teaching Assistant

Fall 2021 **ME 161: Dynamic Systems, Vibrations and Control**, Stanford University Graduate Teaching Assistant

Honors and Awards

May 2020 Bronze Tablet Recipient, University of Illinois at Urbana-Champaign

Awarded to students who rank in the top three percent of their graduating class

Dec 2019 Graduation with Highest Honors, University of Illinois at Urbana-Champaign

Skills

Programming Languages: Python, C++, C#, C, Java, MATLAB, HTML/CSS

Al: Human-in-the-loop learning, HRC, shared autonomy, hierarchical learning, RL, IL, diffusion models

Hardwares: Franka, Sawyer, TIAGo

Robotics: ROS, controls, mobile manipulation, task and motion planning, camera calibration

Libraries: PyTorch, OpenCV, OMPL, NumPy

Softwares: 3D modeling (Creo, SolidWorks, Blender), Gazebo, OmniGibson, robosuite