Ayano Hiranaka

Curriculum Vitae

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misoshiruseijin
Google Scholar

Research Interests

I design AI agents, both embodied and non-embodied, that **"co-evolve"** with humans through effective communication and collaboration. My research focuses on building **human-AI teams that foster mutual improvement** by adapting to and learning from one another. Recently, I have been working on developing an AI-assistant that **resolve human misconceptions** and building a system that streamlines communication and learning between a human user and **vision-language-action (VLA)** models.

Education

2024– **PhD in Computer Science**, *University of Southern California; GPA: 4.00/4.00*

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

Publications

*: denotes equal contribution, †: denotes equal advising

paper **Active Reward Learning and Iterative Trajectory Improvement from Comparative Language Feedback**

website Eisuke Hirota*, Zhaojing Yang*, Ayano Hiranaka, Miru Jun, Jeremy Tien, Stuart J. Russell, Anca Dragan, Erdem Biyik

The International Journal of Robotics Research (IJRR), 2025

paper **HERO: Human-Feedback-Efficient Reinforcement Learning for Online Diffusion Model Fine-tuning**

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 Minjune Hwang*, Ayano Hiranaka*, 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 - Nov 2024 **Sony AI Music Foundation Model Team Research Intern**
Sony AI (Tokyo, Japan)
- Developed human-feedback-efficient RLHF algorithm for text-to-image diffusion model fine-tuning
- Algorithm can train a model for various tasks while also capturing human preference

Mar 2021 - Dec 2023 **Stanford Vision and Learning Lab Graduate Research Assistant**
Stanford University (Stanford CA, USA)
- Led real robot experiments in multiple human-robot collaboration projects
- Experience with 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 - Dec 2019 **Machine Tool Systems Research Lab Undergraduate Researcher**
University of Illinois at Urbana-Champaign (Champaign IL, USA)
- Investigated effect of atomization-based cutting fluid (ACF) spray angle and distance on tool life during micro-drilling operations

Sep 2018 - Jun 2019 **Mehta Research Group Undergraduate Researcher**
University of Illinois at Urbana-Champaign (Champaign IL, USA)
- Developed adaptive particle filter algorithm for real-time piano note pitch identification

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*

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

Services

Reviewing: I serve as a reviewer for ICLR, ICML, CoRL, ICRA, and workshops at RSS

Mentoring: Organizing and serving as mentor for USC CS Undergraduate Mentorship Program that prepare undergraduate students for research and career in CS

Skills

AI: Human-in-the-loop learning, human-AI-teaming, HRI/HRC, shared autonomy, hierarchical learning, RL, IL, diffusion models, representation learning, AI teaching

Hardwares: Franka, Sawyer, TIAGo, WidowX

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

Languages: Japanese (speak, read, write fluently)