

Jyun - Ting Song

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Research Interests

Fields: Computer Vision, Robotics, Machine Learning

Topics: Human Pose Estimation, Contact Detection, Physics Simulation

Education

Carnegie Mellon University

M.S. in Robotics, Cumulative GPA: 3.8/4.0

Advisor: Prof. [Kris Kitani](#)

Sept 2023 – present

National Taiwan Normal University

M.S. in Electrical Engineering, GPA: 4.21/4.3

Advisor: Prof. [Jacky Baltes](#)

Sept 2021 – Jan 2023

National Taiwan Normal University

B.S. in Electrical Engineering, GPA: 3.8/4.3

Advisor: Prof. [Jacky Baltes](#)

Sept 2017 – May 2021

Research Experience

Video - based Human - Object Contact Detection

Aug 2024 - Present

- Constructing a multi-view video dataset with human-object contact annotations
- Developing a method to robustly detect the contact state of a human over time

Multi-Human 3D Reconstruction from In-the-Wild Videos

Oct 2023 - Jun 2024

- Constructed a large-scale 3D multi-human dataset with diverse dynamic activities
- Generated human-related annotations (3D poses and human meshes) from multi-view videos

Balancing Control for a Humanoid Agent in a Dynamic Environment

Jan 2022 - Jan 2023

- Designed RL algorithm structure based on Proximal Policy Optimization (PPO) to train a humanoid agent to play a balance board in a simulation environment (Isaac Gym)

An Olympics Sports Humanoid Robot

Sept 2019 - July 2021

- Developed versatile humanoid robot that could perform skills of Olympic sports events such as archery, basketball, weightlifting, sprint and marathon

Publications

* indicates equal contribution

[1] [Harmony4D: A Video Dataset for In - The - Wild Close Human Interactions](#)

Rawal Khirodkar*, [Jyun - Ting Song](#)*, Jinkun Cao, Zhengyi Luo, Kris Kitani

Thirty - Eighth Annual Conference on Neural Information Processing Systems (NeurIPS), 2024

[2] [Reinforcement Learning and Action Space Shaping for Humanoids in Highly Dynamic Environment](#)

[Jyun - Ting Song](#), Guilherme Christmann, Jaesik Jeong, Jacky Baltes

Springer's Studies in Computational Intelligence (SCI), 2023

[3] [The Corsmal Benchmark for the Prediction of the Properties of Containers](#)

Alessio Xompero, et al.

IEEE Access, 2022

[4] [Interactive Card Magic with Humanoid Robot \(A technical report\)](#)

[Jyun - Ting Song](#), Jacky Baltes

FIRA World Simmit, 2021

Work Experience

Graduate Research Assistant

Carnegie Mellon University

Pittsburgh, USA

Oct 2023 – present

Teaching Assistant - Reinforcement Learning

National Taiwan Normal University

Taipei, Taiwan

Sep 2022 – Jan 2023

Research Assistant

National Taiwan Normal University

Taipei, Taiwan

Sep 2021 – Jan 2023

Competitions & Awards

1st Place, All-Round, HuroCUP, FIRA RoboWorld Cup 2022

July 2022

- **1st Place** in Basketball and Weightlifting, **2nd Place** in Sprint and Archery [\[link\]](#)

1st Place, IJCAI 2021 - Robot Magic and Music Competition

Aug 2021

- Developed a humanoid robot that could perform interactive card magic [\[link\]](#)

2nd Place, Basketball, FIRA SimulCup 2021

July 2021

- Developed a humanoid that could grab and dunk a ball with 98% accuracy [\[link\]](#)

2nd Place, ICPR 2020 - CORSMAL Challenge

Sept 2020

- Estimated mass, type, and fill level of containers using multimodal dataset (visual, audio) [\[link\]](#)

1st Place, Archery, Taiwan Humanoid 2020

July 2020

- Developed a humanoid robot to autonomously shoot an arrow at a moving target [\[link\]](#)

Skills & Interests

Languages: Mandarin Chinese (native), English (fluent)

Programming: Python, C++, C, HTML, LaTeX

Platforms & Tools: PyTorch, Keras, OpenCV, Scikit-learn, NumPy, Pandas, Matplotlib, Open3D, ROS

Interests: Basketball, Guitar, GO