

# Kuan-Chia, Chen

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🌐 <https://kuanchia-chen.github.io>

## Education

<b>Oregon State University</b> <i>M.S. in Computer Science</i>	Corvallis, OR <i>Sep 2023 – Jun 2026</i>
<b>National Taipei University of Technology</b> <i>B.S. in Electrical Engineering</i>	Taipei, Taiwan <i>Sep 2019 – Jun 2023</i>

## Experience

<b>Dynamic Robotics and Artificial Intelligence Laboratory</b> <i>Graduate Research Assistant (Advisor: Prof. Alan Fern)</i>	Corvallis, OR <i>Oct 2023 – Jun 2026</i>
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- Proposed and implemented a keypoint-based reinforcement learning (RL) policy for retargeting human motion to the Digit V3 humanoid robot, achieving over 13 minutes of continuous VR teleoperation.
- Explored the application of diffusion policies for humanoid manipulation using VR-collected demonstrations.
- Developed a hierarchical RL policy for box pick-up using structured object representations (pose and size), improving real-world success rate from 60% to 90% while reducing training time by 50%.
- Designed a hierarchical RL policy for box put down, achieving 93% success in simulation and 90% on hardware.
- Developed a point cloud-based pick-up policy for robust box pickup across varying poses in Isaac Lab.

<b>Puti Intelligence</b> <i>Research Scientist Intern (Loco-Manipulation)</i>	Corvallis, OR <i>Aug 2025 – Sep 2025</i>
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- Developed hierarchical manipulation policies and improved the teleoperation system, increasing stable operation time from 20 minutes to over 1 hour for real-world product demonstrations.
- Deployed RGB-D cameras on a humanoid robot, mitigating sim-to-real gaps caused by depth noise.
- Built an RGB-D pipeline for 9-DoF object pose estimation and integrating it with RL-based manipulation policies.

<b>Innoveon</b> <i>Robotics Engineer Intern (Autonomous Systems)</i>	Taipei, Taiwan <i>Feb 2023 – Jun 2023</i>
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- Developed autonomous mobile robots (AMR) using ROS for navigation, planning, and control.
- Implemented SLAM algorithms for real-time localization and mapping in dynamic environments.

## Publications

<b>Humanoid Hanoi: Shared Whole-Body Control for Long-Horizon Box Rearrangement</b> <i>Under review at Robotics: Science and Systems (RSS 2026)   Project Page: <a href="#">link</a></i> Minku Kim <sup>†</sup> , <b>Kuan-Chia Chen<sup>†</sup></b> , Aayam Shrestha, Li Fuxin, Stefan Lee, Alan Fern	<i>2026</i>
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## Research Projects

<b>Point Cloud to Action: Hierarchical Manipulation Policy</b> • Trained hierarchical RL policies on the Digit V3 humanoid robot in Isaac Lab for box pick-up tasks. • Learned manipulation policies directly from point cloud inputs (PointNet), without explicit object pose estimation.	Corvallis, OR <i>2025</i>
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<b>Diffusion Policy for Robot Manipulation</b> • Trained diffusion-based policies on VR-collected real-world demonstrations for data-efficient robot learning. • Evaluated action rollout horizons (1–8 steps) for performance-speed tradeoffs in MuJoCo.	Corvallis, OR <i>2025</i>
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<b>Keypoint Mimic Policy for VR-Based Whole Body Control</b> • Designed trajectory-based rewards for an RL policy (PPO + LSTM) for humanoid motion retargeting. • Built a VR teleoperation system and mapped human keypoints and locomotion signals to policy inputs. • Achieved real-time (50Hz) control with over 13 minutes of continuous task execution on humanoid hardware.	Corvallis, OR <i>2024</i>
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## Skills

**Robotics & AI:** Bipedal Locomotion, Manipulation, Whole-Body Control, Sim-to-Real Transfer, Reinforcement Learning, Imitation Learning, Diffusion, Flow Matching, Motion Retargeting, SLAM  
**Programming and simulation:** MuJoCo, Isaac Lab, Python, Pytorch, C++, CUDA, Arduino  
**Hardware and Systems:** Jetson Xavier NX, Embedded Systems, PLC, ROS, LIDAR

## Awards

<b>Merit-Based International Graduate Scholarship, Oregon State University</b>	<i>2023</i>
<b>First Place, Taiwan National Senior Secondary School Industrial Control Competition</b>	<i>2018</i>