Tony Jie Wang

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EDUCATION

University of Pennsylvania *(GPA: 3.50/4.0)* — Philadelphia, PA
M.S.E Robotics, Advisor: Prof. Dinesh Jayaraman & Prof. Kostas Daniilidis — Aug 2024 – Jun 2026
Zhejiang University *(GPA: 3.83/4.0)* — Zhejiang, China
BEng. Electronic and Computer Engineering, Advisor: Prof. Said Mikki — Aug 2020 – Jun 2024
University of Illinois at Urbana-Champaign *(GPA: 3.50/4.0)* — Urbana, IL
BSc. Computer Engineering, Advisor: Prof. Deepak Vasisht — Aug 2020 – May 2024

RESEARCH INTERESTS | Robot Learning, Manipulation, Computer Vision

Transfer prior knowledge from foundation models to boost robot learning. Build **curiosity** and **memory** for *Generalist Policies* like **Vision-Language-Action Models (VLAs)**, let them **explore, reason and self-verify** in unstructured human environments.

INDUSTRY EXPERIENCE

DynaRobotics
DYNA-2 Research Team, Mentor: Dr. Jason Ma — *Redwood City, CA*
Research Intern — Jun 2025 – Aug 2025

- Prototyped **Agentic Reasoning** project**:** designed an autoregressive head to **enable VLAs talk**, verify current progress and maintain task memory using one model. [video]
- Engineered large-scale data pipelines by curating, filtering, and normalizing external datasets into pre-training recipes.
- Developed a subtask prediction module for task progress estimation, achieving **90% accuracy** on Napkin Folding.
- Optimized ML infrastructure: conducted code reviews and resolved critical system bottlenecks.
- Deployed and validated models on real-world tasks including *Cloth Stacking* and *Candy Pick-and-Place* .

International Digital Economy Academy
Computer Vision & Robotics Department, Mentor: Dr. Xiaoke Jiang — *Shenzhen, China*
Machine Learning Engineering Intern — Jun 2024 – Sep 2024

- Diagnosed I/O bottlenecks between SLURM clusters, accelerated data loading throughput by 16.7%
- Adapted Grounding DINO 1.6 as a vision encoder to train VLMs on Motion-X++.
- Trained, Finetuned and Optimized an LLaVA-style VLM for human behavior recognition.
- Contributed to the DINO-X, a SOTA vision foundation model family for open-world detection.

PUBLICATIONS

2025 AAWR: Real-World Reinforcement Learning of Active Perception Behaviors, — Philadelphia, PA
Hu, E. S.* **Wang, J.***, et al. **NeurIPS2025 & ARLET workshop**

- Proposed **Asymmetric-AWR**, a novel RL framework that leverages Vision Foundation Models as privileged visual critics during training to scaffold active perception policies, significantly outperforming BC and standard AWR baselines.
- Refactored DROID infra as **EVA**, supporting GELLO and 3DSpaceMouse interfaces, accelerating data collection speed by **~20s per trial** with better control compared to VR Controller.
- Built hardware and perception stack for Koch Arm, implementing RealSense multi-camera calibration and DepthPro 3D object tracking for reward labeling, blind pick and place got **89% success rate** using online RL.

2025 Evaluation of Generalist Policies — Philadelphia, PA

- **Wang, J.** et.(2025) *Evaluating pi0 in the Wild: Strengths, Problems, and the Future of Generalist Robot Policies,* **GRASP Lab Blog**
- Led comprehensive observation study on frontier VLA models across 300+ real-world trials
- RoboArena Team, (2025) *RoboArena: Distributed Real-World Evaluation of Generalist Robot Policies,* **CoRL2025 Oral**
- Co-organized the **RoboArena Workshop at CoRL 2025**

2025 Zero-shot Manipulation using VLMs — Philadelphia, PA

- Shi, J. Zhao, Z. Wang. T. Pedroza, I. Luo, A. **Wang, J.** Ma, J. Jayaraman. D (2025) *ZeroMimic: Distilling Robotic Manipulation Skills from Web Videos,* . **ICRA 2025** & Best Paper at **CVPR 2025** 3DVLM Workshop
- Reproduced ReKep on a Mobile Franka Arm Platform with DROID, conducted experiment for ZeroMimic as a baseline.
- Reproduced SPHINX for hybrid salient point control using transformer and diffusion policy.
- Built a video processing tool as shared infra, upgraded the physical lighting system for the lab.

2023 Visionary Co-Driver: LLMs Enhance Driver Risk Perception with ARHUD — Hangzhou, China
Xiang, X., Lei, Z., **Wang, J.** et.al. (2025) **IEEE Transactions on Intelligent Transportation Systems (IEEE T-ITS)**

- **Engineered an LLM-driven risk assessment framework** for human-machine co-driving; integrated the system to interpret monocular video streams and generate eye-tracking, context-aware risk warnings via AR-HUD.
- **Designed the Human-Computer Interface (HMI)** incorporating eye-tracking to monitor driver attention
- **Conducted a high-fidelity user study (N=41)** in a simulated cockpit; statistics of behavioral data demonstrate significantly improved risk awareness and reaction times.

PROJECT EXPERIENCE

2024 Senior Design: Intelligent Pour-Over Coffee Machine *[Thesis]*   Haining, China
- Built a pour-over coffee machine by reverse engineering.
- Guaranteed food-grade quality coffee for drink.
- Customizable coffee recipe according to user preferences.

2023 CS438: Communication Networks Wireless Project *[Report]*   Urbana, IL
- Developed an open-source Python tool for comprehensive wireless network analysis, focusing on Wi-Fi access points roaming mechanisms and signal strength heatmap generation.
- Designed a procedure-oriented data pipeline architecture including coordinate construction, data collection, data preprocessing, heatmap generation, and individual AP analysis.

2021 Sim & Real Experiment on Baidu Apollo D-kit Autonomous Vehicle   Haining, China
- Reproduced Apollo7.0 simulation experiments on CARLA, testing across 10 maps.
- Assembled the LiDAR, Radar and Camera module for Baidu Apollo D-kit Autonomous Vehicle.
- Constructed the high-solution LiDAR map of ZJU international campus via Baidu Apollo D-kit Vehicle.

ACADEMIC CONTEST

2023 Shell Eco-marathon Autonomous Programming Competition   *ROS, Carla, Python,*
- Developed path planning, perception, and control modules for simulation autonomous vehicles using the Robot Operating System (ROS) stack provided by the competition.
- Utilized the CARLA simulator with the Unreal Engine to test our vehicle in a simulated environment, with the goal of achieving the most efficient path planning according to the competition's ranking criteria.

2022 International Mathematical Contest in Modeling (Honorable Mention)   *MATLAB, Python*
- Addressed the issue of water scarcity in the Colorado River in the United States by constructing a mathematical model for water-to-electricity supply using dynamic programming and Monte Carlo algorithm.
- Used SPSS time series analysis tools to predict water demand for each state, generated a demand matrix for the water system. By sensitivity analysis, demonstrated strategies for addressing conditions such as rapid depletion of water resources, involvement of renewable energy technologies, and application of conservation measures.

2021 DJI RoboMaster University Robotics Competition   *Python, PyTorch, C/C++*
- Assisted in developing and optimizing vision algorithms for object detection via YOLOv4, contributing to auto-aiming and shooting system for real-time target engagement, improving hit accuracy by 20%.
- Supported the integration of vision systems on Jetson Nano with embedded platforms on DJI manifold2, achieving a 30 FPS during live competition on the industrial camera.

Service

Reviewer for RSS2025, NeurIPS2025, ICLR2026	
GRASP Lab Student Faculty Industry (SFI) Committee Member at UPenn	2025
Teaching Assistant in MEAM5200: Introduction to Robotics	2025
Teaching Assistant in PHIL 206: Early Modern Philosophy	2024
Head Teaching Assistant in MATH213: Introduction to Discrete Mathematics	2023

Miscellaneous

Vice President, Robotics Entrepreneur Club (PERC) at UPenn	Sep 2024 – Now
Volunteer for GRASP Lab Demo & Presentation	Sep 2024 – Now
Founder & President, PhiloCoffee Club at ZJU	Aug 2023 – Aug 2024