Dai-Jie Wu

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RESEARCH INTERESTS

My research focuses on efficiently deploying robot foundation models across new tasks, embodiments, and environments with less human intervention through test-time adaptation and in-context learning. I study how data sources (agent-built simulation, UMI-style human data) and behavioral coverage shape adaptation and safety, and how learning methods better exploit scale. I aim to build large-scale simulation datasets and benchmarks spanning embodiments and safe and unsafe behaviors, toward generalizable safety models for pretrained policies at test time. These interests span cross-embodiment transfer, physical and semantic safety, and human-robot interaction, motivated by our Utah team's hospital deployment efforts within the Center for Human and Robot Co-Adaptation, an NSF Science and Technology Center. I care about evaluation that explains why methods fail.

EDUCATION

University of Utah — Salt Lake City, Utah, U.S.
Ph.D. in Computing, advised by Prof. Kenneth Marino — Jan. 2026 – Present

National Cheng Kung University (NCKU) — Tainan, Taiwan
B.S. in Mechanical Engineering & B.B.A. in Statistics (Dual Degree) — Sep. 2016 – June 2021

PUBLICATIONS

Under Review

S: submission · C: conference · J: journal · *: equal contribution

S4 **READ: What Makes a Pretrained VLA Teachable by Demonstration?**
Dai-Jie Wu, Minh Pham Dinh, Kenneth Marino
CoRL 2026 Workshops (Pretrain to Adapt; Memory for Robot Foundation Models) [Project]

S3 **Language-Critique Imitation Learning from Suboptimal Demonstrations**
Chih-Han Yang, **Dai-Jie Wu***, Yun-Ping Huang*, Ping-Chun Hsieh, Kenneth Marino, Shao-Hua Sun
Submitted to ICLR 2027; CoRL 2026 Workshops (Oopsie; LfC) [arXiv]

S2 **ASAP: Arbitrary-Step Safe Planning with MeanFlow and Control Barrier Functions**
Tzu-Yuan Huang, Yi Yue, **Dai-Jie Wu**, Stefan Sosnowski, Shih-Hsin Wang, Kenneth Marino, Armin Lederer, Sandra Hirche
Submitted to ICLR 2027

S1 **Intervention-Robust VLA: Diverse Demonstrations for Robot Deployment with Safety Filters**
Tzu-Yuan Huang, Shao-Hsuan Chang, **Dai-Jie Wu**, Ralf Römer, Yung-Hui Li, Stefan Sosnowski, Angela P. Schoellig, Kenneth Marino, Sandra Hirche
Submitted to ICRA 2027

Published

C7 **SAD-Flower: Flow Matching for Safe, Admissible, and Dynamically Consistent Planning**
Tzu-Yuan Huang, Armin Lederer, **Dai-Jie Wu**, Xiaobing Dai, Sihua Zhang, Hsiu-Chin Lin, Shao-Hua Sun, Stefan Sosnowski, Sandra Hirche
ICML 2026 [Project] [arXiv]

C6 **CooT: Learning to Coordinate In-Context with Coordination Transformers**
Huai-Chih Wang, Hsiang-Chun Chuang, Hsi-Chun Cheng, **Dai-Jie Wu**, Shao-Hua Sun
ICML 2026 & ICML 2025 MAS Workshop [Project] [arXiv]

C5 **CRAB: Cross-environment Agent Benchmark for Multimodal Language Model Agents**
Tianqi Xu*, Linyao Chen*, **Dai-Jie Wu***, Yanjun Chen*, Zecheng Zhang, Xiang Yao, Zhiqiang Xie, Yongchao Chen, Shilong Liu, Bochen Qian, Anjie Yang, Zhaoxuan Jin, Jianbo Deng, Philip Torr, Bernard Ghanem, Guohao Li
ACL Findings 2025 & NeurIPS 2024 OWA Workshop [Project] [arXiv]

C4 **Diffusion Imitation from Observation**
Bo-Ruei Huang, Chun-Kai Yang, Chun-Mao Lai, **Dai-Jie Wu**, Shao-Hua Sun
NeurIPS 2024 [Project] [arXiv]

C3 **StyleDiT: A Unified Framework for Diverse Child and Partner Faces Synthesis with Style Latent Diffusion Transformer**
Pin-Yen Chiu*, **Dai-Jie Wu***, Po-Hsun Chu, Chia-Hsuan Hsu, Hsiang-Chen Chiu, Chih-Yu Wang, Jun-Cheng Chen
IEEE FG 2026 (oral) [arXiv]

C2 **Towards Validating Face Editing Ability in Generative Models**
Dai-Jie Wu*, Pin-Yen Chiu*, Chih-Yu Wang, Jun-Cheng Chen
IEEE VCIP 2024 (oral) [Paper]

C1 **Cross-Modal and Cross-Domain Knowledge Transfer for Label-Free 3D Segmentation**
Jingyu Zhang*, Huitong Yang*, **Dai-Jie Wu***, Jacky Keung, Xuesong Li, Xinge Zhu, Yuexin Ma
PRCV 2023 [Paper]

J1 **A high-throughput pipeline for phenotyping, object detection and quantification of leaf trichomes**
Andrea González-Muñoz, **Dai-Jie Wu**, Ana Belén Perera-Rodríguez, Mohamed Rekik, Silvio Giancola, Brande B. H. Wulff, Catherine Gardener
TAG 2025 [Paper]

RESEARCH & INDUSTRY EXPERIENCE

SPARK Lab, University of Utah — Salt Lake City, Utah, U.S.
Graduate Research Assistant with Prof. Kenneth Marino — Jan. 2026 – Present

- Developed READ (S4) for adaptation from five in-context demonstrations without test-time gradient updates, and investigated how training-task coverage affects generalization. Extending the READ architecture to world models. Contributed to Intervention-Robust VLA (S1), studying demonstration diversity for maintaining task performance under safety-filter interventions.
- Designing a large-scale simulation dataset and benchmark for cross-embodiment adaptation and generalizable safety models.

SHENNONGSHI.AI — Taipei, Taiwan
Research Intern, Robot Learning for Cooking Applications — May 2025 – Dec. 2025

- Established the company's first end-to-end robot learning pipeline for cooking, designing and implementing data collection, imitation learning, manipulation policies, and real-world robot integration.

Robot Learning Lab, National Taiwan University — Taipei, Taiwan
Research Assistant with Prof. Shao-Hua Sun — May 2024 – Dec. 2025

- Conducted research and mentored students in robot learning, reinforcement learning, diffusion models, and foundation models.
- Led the lab's first real-world robotics project using ALOHA, covering hardware setup, teleoperation data collection, and deployment.

GenAI Center, King Abdullah University of Science and Technology (KAUST) — Thuwal, Saudi Arabia
Research Engineer with Prof. Bernard Ghanem and Dr. Guohao Li — May 2023 – May 2024

- Developed a large-scale ML inference system, reducing inference latency by **60%** and cost by a factor of **3**.
- Contributed to the core experimental codebase for advancing research in AI for Science and Agent development.

Research Center for Information Technology Innovation, Academia Sinica — Taipei, Taiwan (Remote)
Research Assistant with Dr. Jun-Cheng Chen — Oct. 2022 – May 2023

- Led diffusion and GAN research on kinship face synthesis and editing, with oral presentations at IEEE FG 2026 and IEEE VCIP 2024.

Computer Vision Team, Wisers AI Lab — Taipei (Remote)
Machine Learning Engineer (Research Associate) with Dr. Xiaochuan Yu — Aug. 2021 – June 2022

- Engineered a face recognition system with **2.5×** efficiency and **10%** accuracy improvements, while optimizing **10+** APIs to streamline development and boost deployment speed by **15%**.

TECHNICAL SKILLS

Robotics: ALOHA, Universal Robots (UR), YAM, Stretch, UMI; ROS 2
Frameworks & Simulation: Python, PyTorch, JAX, Isaac Sim, Isaac Lab, MuJoCo
Systems & Tools: Linux, Docker, Slurm; large-scale distributed training (36 GB200 GPUs)

AWARDS & ACHIEVEMENTS

PhD Fellowship: Kahlert School of Computing at University of Utah
Top Reviewer Awards: NeurIPS 2026 (top 8% of reviewers), ICML 2026 (Gold Reviewer)
Silver Medal: International Conference on Computer Vision (ICCV) 2021 Landmark Retrieval Challenge
Silver Medal: NCKU Mechanical Engineering Department Capstone Robotics Competition
2nd Place: National Electric Vehicle Design and Innovation Challenge
Distinguished Freshman Scholarship: NCKU Mechanical Engineering Department

TEACHING, TALKS & SERVICE

Teaching Assistant: Reinforcement Learning, Fall 2024, National Taiwan University
Talk: Robot learning tutorial, ROS CON Taiwan 2025
Reviewer: NeurIPS 2026, ICML 2026, ICLR 2027, 2026 & 2025, CoRL 2026 & 2025, ICCV 2025