Jiacheng Hou

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Education

The Ohio State University, Columbus OH   GPA: 4.0 / 4.0

B.S. in Computer Science and Engineering - Advisor: Wei-Lun (Harry) Chao   Aug 2024 – Present

Publications

- **AVA-Bench: Atomic Visual Ability Benchmark for Vision Foundation Models**

  Zheda Mai, Arpita Chowdhury, Zihe Wang, Sooyoung Jeon, Lemeng Wang, **Jiacheng Hou**, Wei-Lun Chao

  arXiv:2506.09082, 2025

- **BeetleFlow: An Integrative Deep Learning Pipeline for Beetle Image Processing**

  Fangxun Liu, . . . **Jiacheng Hou**, . . . Wei-Lun Chao (22 authors)

  NeurIPS 2025 Workshop for Imageomics: Discovering Biological Knowledge from Images Using AI

- **Continually Adapt or Not (CAN)? A Continual Learning Benchmark of Camera Trap Species Classification over Time**

  Sooyoung Jeon, Zheda Mai, Hongjie Tian, Vidhi Bakshi, Lemeng Wang, **Jiacheng Hou**, Ping Zhang, Arpita Chowdhury, Wei-Lun Chao

  NeurIPS 2025 Workshop on Imageomics: Discovering Biological Knowledge from Images Using AI

Research Experience

Research Assistant, The Ohio State University – Columbus, OH   Mar 2025 – Present

3D Foundation Models For Object Detectors

- Explored multi-view feature extraction and sensor fusion strategies to enhance the robustness of detection.
- Worked on training 3D detectors with 3D-enriched features generated by 3D foundation models to demonstrate the benefits of the geometry-grounded features for 3D detection.

Atomic Visual Ability Benchmark for Vision Foundation Models

- Led Atomic Visual Ability(AVA) dataset construction of Orientation/Scene Classification/Texture Recognition end-to-end: labeling schema and edge cases, image curation, and balanced, leakage-free splits.
- Contributed to build Atomic Visual Ability(AVA) evaluation assets, enabling reliable ability-level diagnosis in AVA-Bench and exposing "ability fingerprints" and failure modes of VFMs.

Wildlife Camera Trap Animal Image System

- Assisted in building a camera-trap benchmark by aggregating 546 camera traps across 17 datasets; designed a efficient data pipeline and reframed the task as online continual learning and out-of-distribution(OOD) detection to mirror real-world deployment.
- Contributed to a study with a CLIP-based animal search system, revealing a long-tailed per-trap accuracy distribution and the need for continual adaptation; distilled open challenges and practical guidelines.

Project

Buckeye Autodrive, The Ohio State University – Columbus, OH   Aug 2024 – Present
Core Perception Developer

- Developed 3D detection and SLAM modules in a pipeline operating with Robot Operating System (ROS).

Skills

- *Programming Languages*: Python, C++, Java
- *Libraries*: Pandas, NumPy, Matplotlib, Seaborn, Scikit-Learn.
- *Software*: PyTorch, CUDA, ROS, Linux, UNIX, MVC model, Junit debugging, and Git.