Weizhen Wang

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Education

University of California, Los Angeles — *Los Angeles, United States*

M.S. in Computer Science — *September 2023 - June 2025*

- GPA 3.51/4.0.
- **Teaching Assistant:** Introduction to Computer Science I & II.
- **Research Assistant:** at UCLA Zhou's Lab. Focusing on enabling Vision-Language-Models to serve as embodied agents.
- **Course Reader:** for COMSCI 260R, Reinforcement Learning.
- **Courses:** Reinforcement Learning, Bayesian Networks, Advanced Data Mining, Large-scale Machine Learning, Software Engineering.

University of California, Los Angeles — *Los Angeles, United States*

B.S. in Computer Science, Minor in Mathematics — *September 2019 - June 2023*

- GPA 3.9/4.0.
- Active member of Upsilon Pi Epsilon at UCLA, a CS honor society.
- Dean's Honor List.
- **Courses:** Network Theory, Machine Learning, Deep Learning for Computer Vision, Natural Language Processing, Optimization, Software Engineering, Database Management System, Computer Network, Numerical Methods, Data Science.

Research Experience

UCLA Bolei Zhou's Lab — *Los Angeles, United States*

Graduate Student Researcher — *March 2023 -*

- Focusing on empowering general-purpose Vision-Langauge-Models (VLMs) as embodied agents.
- Leading author for a large-scale benchmark for evaluating and improving general-purpose VLMs as embodied agents. **Accepted for CVPR 2025**. Fine-tuned VLMs on the proposed benchmark demonstrate drastic improvements in embodied scene understanding, verified in both open-loop Visual Question-answering and closed-loop driving tasks.
- Proposed project contributed to the lab's winning of the 2025 **Office of Naval Research Young Investigator Award**.

UCLA SRILabs — *Los Angeles, United States*

Undergraduate Student Researcher — *March 2023 - Jun 2023*

- Supervised by Ph.D. candidate Sven Malama and Ph.D. Debasish Jana.
- Aggregate existing road crack datasets to train a Yolov8 model for the instance segmentation task. The downstream application detects road failures from images shot in the Greater Los Angeles Area.

UCLA Miryung Kim's Lab — *Los Angeles, United States*

Undergraduate Student Researcher — *Fall 2021 - Fall 2022*

- Supervised by Ph.D. candidate Jiyuan Wang and Professor Miryung Kim.
- Developed a heterogeneous differential fuzzer for the Intel DevCloud platform.
- Benchmark Intel OneAPI asynchronous methods. Discover errors in the official documentation.

Work Experience

UCLA Computer Science — *Los Angeles, United States*

Special Grader — *Jan 2025 - Mar 2025*

- Grade assignments and examinations for a graduate-level course in reinforcement learning.

UCLA Computer Science — *Los Angeles, United States*

Teaching Assistants — *Sep 2023 - Mar 2024*

- Host weekly office hours and discussion sessions. Grade homework exams.

iFLYTEK — *Hefei, China*

Algorithm Research Intern(Autonomous Driving Department) — *Aug 2023 - Sep 2023*

- Develop deep-learning-based intelligent agents for autonomous driving to augment the Kalman Filter control process.
- Integrate open-source driving simulator, MetaDrive, into data generation pipeline. Bridge research interest with commercial usage.

3H1 Technology — *Hefei, China*

Artificial Intelligence Development Intern — *July 2023 - Aug 2023*

- Deploy ChatGLM2-6B on the company's server under the resource budget. Host the models for internal usage.

Publications

Embodied Scene Understanding for Vision Language Models via MetaVQA *Los Angeles, U.S.*

First Author *Jun 2023 - Dec 2024*

- **Accepted for CVPR 2025**
- A generic benchmark for evaluation and improvements of the embodied scene understandings of general-purpose Vision-Language-Models.
- Improved VLMs' situational awareness with emergent barrier evasion behavior.
- Project available at `https://metadriverse.github.io/metavqa/`

STORK: Improving the Fidelity of Mid-NFE Sampling for Diffusion and Flow Matching Models *Los Angeles, U.S.*

Second Author *Feb 2025 - May 2025*

- **In submission.**
- A fast structure-independent ODE solver for the sampling of diffusion models using around 20 model evaluations.
- Beat SOTA methods by significant margins with noise-predicting and flow-matching models.
- Project will be made public soon.

Dreamland: Hybrid World Creation with Simulator and Generative Models *Los Angeles, U.S.*

Co-author *Feb 2025 - May 2025*

- **In submission.**
- A hybrid world model for scalable agent learning in autonomous driving.
- Combine physics-based simulation with realistic re-rendering using generative models for high-fidelity simulation with rich visual appearances.
- Project will be public soon.

Projects

MPT: Transformer in Trajectory Prediction of Autonomous Vehicles *Los Angeles, U.S.*

Author *Jan 2023 - Mar 2023*

- An innovative transformer-based encoder-decoder architecture for real-world trajectory predictions leveraging Waymo Open Motion Dataset.
- Improved convergence rate and Minimum Average Displacement Error (minADE) by 20 percent.

Commonsense Diagnostics in Large Language Models *Los Angeles, U.S.*

Author *Jan 2023 - Mar 2023*

- Leverage Com2Sense diagnostics dataset to evaluate commonsense internalization of popular pre-trained Large Language Models (LLMs).
- Achieve first-place commonsense performance in class using a fine-tuned pre-trained DeBerta-v3-Large model on Huggingface.

BruinRide: A Rideshare Application for Bruins *Los Angeles, U.S.*

Frontend Developer *Sep 2022 - Dec 2022*

- A full-stack ride-sharing web application targeting the UCLA community with NFT rewards.

Skills

Programming Python (PyTorch, Scikit-learn, Transformers, OpenCV, Diffusers, etc.), C/C++, React/Next.js, Database Systems(Firebase, etc.)

Miscellaneous Linux, Shell (Bash/Zsh), LaTeX, Git, Google Cloud, AWS

References

Embodied Scene Understanding for Vision Language Models via MetaVQA
Weizhen Wang, Chenda Duan, Zhenghao Peng, Yuxin Liu, Bolei Zhou
arXiv preprint arXiv:2501.09167 (2025). 2025