WANG, HAINA

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EDUCATION

Zhejiang University, Hangzhou, China **Sept 2020 - Jun 2024**

- **Degree:** B.S. in Computer Science and Technology
- **GPA: 3.90/4.00** (88.7/100)

University of California, San Diego, United States **Sept 2024 - Present**

- **Degree:** M.S. in Computer Science (expected)
- **GPA: 4.0/4.0**

SELECTED PROJECTS

Research on ManiTaskGen: A Comprehensive Task Generator for Benchmarking and Improving Vision-Language Agents on Embodied Decision-Making (Submitted to CVPR 2026) **Dec 2024 – Present**

Co-first Author, *supervised by Prof. SU Hao, Su Lab, University of California, San Diego*

- Implemented ManiTaskGen, a novel system that automatically generates comprehensive, diverse and feasible mobile manipulation tasks for any given scene, crucial for achieving artificial general intelligence.
- Utilized a hybrid generation approach, synthesizing process-based tasks from a novel receptacle-aware 3D scene graph and abstract outcome-based tasks via VLM voting.
- Constructed ManiTaskGen-RAS-40K benchmark, demonstrating high human-verified task validity (94.0% for process tasks) and superior diversity over baselines.
- Evaluated State-of-the-art VLM agents with ManiTaskGen-RAS-40K, and further applied an inference-time RFT optimization method, increasing the success rate of Gemini-2.5-flash from 36% to 58%.

Research on Deviation Correction Based on Graph Recommendation Algorithm **Apr 2023 – Jun 2024**

Leader*, supervised by Prof. WANG Can, ZLST Lab, Zhejiang University*

- Optimized the loss function used in the existing graph recommendation user-item training model like matrix factorization (MF) and LightGCN, by investigating the long tail effect with different exposure and preferences index
- Designed specialized loss functions referring to the conclusion of a lower rank of exposure matrix and a less obvious long tail effect after analyzing the relation of user preference and item exposure
- Established the matrix factorization and LightGCN model, and adjusted hyperparameters and optimizers to improve model performance
- Proposed a 200+1-dimensional model to improve recommendation precision and achieve 80.43% recall and 0.666 ndcg@5, comparing to original dataset of 79.72% recall and 0.668 ndcg@5

Project of SIGGRAPH 2016 Paper Reproduction **Apr 2023 – Jun 2023**

Leader, *supervised by Prof. ZHOU Kun and Prof. REN Zhong, Zhejiang University*

- Reproduced a rough sketch cleanup project originally written in Lua through PyTorch
- Constructed two comparable datasets to reflect the importance of artificial noise and limited noise, including one from the original hand drawn images and the other from the color image directly binarized
- Produced the training code for target model and the other testing code for restoring line draft

INTERNSHIP

Bytedance Co., *Hangzhou, China* **Feb 2024 – Jun 2024**

Software Development Engineer, Machine Learning Platform.

- Conducted in-depth analysis of **model execution traces** across various GPU architectures to quantify performance bottlenecks and utilization bounds (e.g., memory, computation, IO).
- Benchmarked the efficiency variance of different models on heterogeneous GPU, providing data-driven recommendations that informed model deployment strategies and improved resource allocation efficiency.

Light Chaser Animation Co., *Beijing, China* **Jul 2022 – Aug 2022**

Technical Developer Intern, Technical Department

- Analyzed the rendering binding codes involving advanced graphics such as operations on follicle nodes and inverse kinematics
- Participated in the internal cloud platform development research and improved the cooperative pain points such as aligning internal file formats
- Supported in animation motion capture work such as resetting the venue, operating the software, and guiding poses

SELECTED COURSEWORK

Coursework for *Machine Learning for Music* **Apr. 2025 – Jun 2025**

- Fine tuned MusicGen model to generate continuous music given different conditions: Continuation, Text and melody, and achieved 2943 MFCC Distance comparing to 3981 before tuning.

Coursework for *AI for Robotics* **Apr. 2025 – Jun 2025**

- Designed a custom task environment which requires the agent to assemble two isosceles right triangular blocks into a square, and use PPO algorithm to solve it, achieving 79.2% success-at-once rate.

Coursework for *Visualization and Cloud Computing* **Jan 2025 – Mar 2025**

- Implement an autoscaling feature for Preble, a distributed LLM serving system designed to optimize KV cache reuse and workload distribution through hierarchical scheduling architecture.

Coursework for *Parallel Computation* Sept. **2024 – Dec. 2024**

- Utilized the idea of multi-output-per-thread and butterfly-fit to optimize matrix multiplication to 4000+ GFLOPS on T4 GPU, and studied stencil programming to simulate a 2D wave equation.

Coursework for *Object-Oriented Design* **Sept 2021 – Jan 2022**

- Developed a mini MeshLab program using OpenGL framework with more than 2000 lines of codes, supporting rotating, zooming in and out, changing surface color, surface subdivision, undo, and save the file with OBJ format.

HONORS

Contests (ACM/ICPC/CCPC)

- Gold Medal of the 2021 China Collegiate Programming Contest Asia East Contests, Weihai, Nov 2022
- Gold Medal of the 2021 International Collegiate Programming Contest Asia East Contests, Kunming, Apr 2022
- Gold Medal of the 2021 International Collegiate Programming Contest Asia East Contests, Jinan, Nov 2021
- Gold Medal of the 2021 International Collegiate Programming Contest Asia East Contests, Kunming, Apr 2021
- Gold Medal of the 2020 International Collegiate Programming Contest Asia East Contests, Yinchuan, May 2021

Scholarship

- 2nd Prize Academic Scholarship of Zhejiang University in Oct 2021, Oct 2023 (8%)
- 2nd Prize ND Scholarship of Zhejiang University Education Foundation in Oct 2021 (7/735)

TECHNICAL SKILLS

Programming: C/C++ (6 yrs), Python (4 yrs)

Software: STATA (1 yr), EViews (1 yrs)

Developing Tools: PyTorch, Vivado, Xilinx, Linux