JIAHAO ZHAN

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EDUCATION

Fudan University, Shanghai Sept. 2022 - Present
Bachelor of Artificial Intelligence (Honor Class, Computer Science Track)
GPA: 3.91/4.0, Rank: 2/208, National Scholarship (2022 - 2023, Top 1 of the school), National Scholarship (2023 - 2024, Top 1 of the school)
Selected Courses: Mathematical Analysis (A), Linear Algebra (A), Object-oriented Programming (A), Data Structure (A), Probability and Mathematical Statistics (A), Computer Graphics A (A), Human-Computer Interaction (A), Artificial Intelligence (A), Method of Optimization (A)

Hong Kong University of Science and Technology, Hong Kong Jan. 2025 - Jun. 2025
Exchange Student in Computer Science

RESEARCH INTERESTS

Hybrid Generative Simulator, 3D Computer Vision, AIGC

PUBLICATION

- **Fake it till You Make it: Reward Modeling as Discriminative Prediction**
  Runtao Liu*, **Jiahao Zhan***, Yingqing He, Chen Wei, Alan Yuille, Qifeng Chen. (Submitted to Neurips 2025)
- **MAC: A Live Benchmark for Multimodal Large Language Models in Scientific Understanding**
  Mohan Jiang, Jin Gao, **Jiahao Zhan**, and Dequan Wang. (Submitted to COLM 2025)
- **Generalizing Motion Planners with Mixture of Experts for Autonomous Driving**
  Qiao Sun*, Huimin Wang*, **Jiahao Zhan**, Fan Nie, Xin Wen, Leimeng Xu, Kun Zhan, Peng Jia, Xianpeng Lang, Hang Zhao (ICRA 2025)

RESEARCH EXPERIENCES

Stanford Vision and Learning Lab Jun. 2025 - Present
Research Intern, advised by Prof. Jiajun Wu

- **Optimization of the 4D representation in the interactive world:**
  - Improve the quality of the interactive world generation using advanced video generation models via SDS loss.

HKUST Visual Intelligence Lab Jan. 2025 - Jun. 2025
Research Intern, advised by Prof. Qifeng Chen

- **Fake it till You Make it: Reward Modeling as Discriminative Prediction:**
  - Existing preference alignment methods rely heavily on costly human annotations or require combining multiple metrics to construct rewards, which is both expensive and suboptimal.
  - Instead, we propose to infer preferences directly from the target data distribution, eliminating the need for extensive external supervision.
  - Our method enables learning a robust reward model from minimal data, facilitating efficient sampling and RLHF optimization, also enabling multi-round GAN-like optimization.

Shanghai Qi Zhi Institute May. 2024 - Jan. 2025
Research Intern, advised by Prof. Hang Zhao

- **Generalizing the Motion Planners in Autonomous Driving:**
  - After participating in the CVPR 2024 Autonomous Grand Challenge, I observed that current autonomous driving planning models lack the capability to generalize to some hard cases and are difficult to scale up.
  - Optimize NuPlan's simulation pipeline.
  - Explore Mixtral of Experts' ability to balance different rewards in closed-loop simulation.

- Handle the self-driving problem in a sequence modeling way and illustrate the rasterized representation's advantage in self-driving.

Shanghai AI Lab Mar. 2023 - May. 2024
Research Intern, advised by Prof. Dequan Wang

- **Large Multi-modal Models Benchmark:**
  - Despite the rapid development of Large Multi-modal Models (LMMs), there is still a lack of benchmarks for evaluating their comprehension of abstract concepts, particularly in the scientific domain.
  - Constructed the Multi-modal Academic Cover (MAC) Benchmark, a challenging and continuously updating benchmark that utilizes the covers and cover stories of prestigious academic journals to quantify the intelligence levels of LMMs.
  - Evaluated the capacities of state-of-the-art LMMs in understanding, interpreting, and generating academic content.
- **Efficient In-Context Learning:**
  - Due to the limitation of context length in LLMs, a demonstration selection technique is necessary to enhance prompt knowledge density.
  - Proposed a Bayesian-based Prompt Selection (BPS) technique to select knowledge-intensive prompts for in-context learning.
  - Explored the use of verbalized `logp` to circumvent the informational constraints encountered with LLM APIs, thereby enhancing the generalization of our method.

PROJECT EXPERIENCES

Shape Completion and Reconstruction of Sweet Peppers Challenge (ECCV workshop) Aug. 2024
Team Member

- Won the third prize.
- Constructed a point completion algorithm based on current researches.

Course Project of HCI: A Multi-modal Agent System May. 2024
Project Leader

- Developed an agent system that can hear what you hear, see what you see, and feel what you feel.
- Reduced the reacting latency to only 2 seconds and implement the interactive functions.

Intel LLM-based Application Innovation Contest Nov. 2023
Project Leader

- Developed OptiPrompt, a user-friendly framework that can automatically optimize prompts to explicit users' questions and promote LLMs' performance based on Intel BigDL platform.
- Released the prototype in the final of the competition, winning the second prize.

SKILLS

Programming Languages: C/C++, Python, Bash, Git, LaTeX
Frameworks: Pytorch, Huggingface Transformers