YiXiao Chi

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research interests: Reinforcement Learning, Offline Reinforcement Learning

Education

Junior, Computer Science and Techonology, Zhejiang University, Hangzhou, China Sept.2022 – Present

- *GPA*: 4.00/4.3
- *Main Course*: Computer Architecture(94), Operating System(91), Data Structure Basic(92), Program Design Topic(95), C program Design Basic(93)
- *Award*:
  - Third-class Scholarship(*3 consecutive years: 2023, 2024, 2025*)
  - The Methematical Contest in Modeling(MCM 2024) *Meritorious Winner*
  - 2023 Zhejiang Provincial Higher Mathematics Competition for University Students(Engineering) *Second Prize*
  - 15th National College Student Mathematics Competition (Non-Mathematics Category) *Second Prize*
- *Relevant Skills*:
  - Languages: Python, C++, Latex
  - Frameworks: Pytorch
  - Tools: Git, Docker, Linux
  - English: GRE6(607), Toefl(104)

Projects

1. **Preserving history with intelligence** Jul.2023 - Jun.2024
   - Advisor: Wei Chen, Professor in State Key Lab of CAD&CG, Zhejiang University.
   - Accomplishments:
     - China International College Students' Innovation Competition(2024) *Bronze Price*
     - **Granted Chinese Patent**: "Deep Learning-Based Archaeological Information Extraction Method, Apparatus, Equipment, and Medium" (CN119693633B) Issued April 29, 2025.
   - We developed a deep learning pipeline integrating YOLO object detection and PaddleOCR for automated extraction, segmentation, and semantic naming of archaeological figures and annotations from document images, significantly enhancing data processing efficiency and implemented an interactive image segmentation module based on the SAM model to enable precise manual refinement of extraction results.

2. **Video quality evaluation of graphic rendering based on deep learning** Nov.2024 – May.2025
   - Advisor: Xiaogang Jin, Professor in State Key Lab of CAD&CG, Zhejiang University.
   - We constructed the **first large-scale dataset(*ReVQ-2k*)** for rendered video quality (2,000 videos, 57k subjective scores), uniquely including temporal stability annotations crucial for assessing rendered content.
   - We co-developed a novel two-stream *NR-VQA* model combining image quality assessment (Swin-T based) with a dedicated temporal stability analysis module (utilizing motion estimation and image differencing), achieving state-of-the-art performance for rendered videos.

3. **Price Compare Website** Oct.2024 – Jan.2025

   Independently designed and developed a full-stack web application for product price comparison across major e-commerce platforms(Tianmao, JD, Pinduoduo).
   - Implemented core features including user authentication, personal product libraries, historical price tracking and charting, and automated price drop notifications.
   - Developed a data acquisition module using Selenium to collect real-time pricing from online users.

4. **Snake 3v3** Aug.2024 – Sep.2024

   Achieved top performance in class competition: The Heuristic Algorithm (Rule-based policy) **ranked 1st**, and the QMIX reinforcement learning policy **ranked 2nd**.
   - We developed and implemented QMIX and MAPPO strategies for a 3v3 Snake game.
   - We designed and tuned a complex Reward Shaping scheme, including specific rewards for eating food, penalties for opponents, and adjustments based on snake length differences
   - We also applied Population Based Training (PBT) for dynamic hyperparameter tuning and exploring the strategy space during training, leveraging parallel data collection.

Publications

(* indicates Equal Contribution)

1. **BiTrajDiff: Bidirectional Trajectory Generation with Diffusion Models for Offline Reinforcement Learning**
   Yunpeng Qing[1*], Shuo Chen[2*], **Yixiao Chi**[2*], Shunyu Liu[3], Sixu Lin[4], Changqing Zou[1,5†]
   [paper]
   - We propose BiTrajDiff, a data augmentation method in offline reinforcement learning which concurrently imagines both future and historical trajectories on a given state and stitches both the independently sampled forward-future and backward-historical trajectories conditioned on common intermediate states together to form an augmented trajectory. Experiments conducted on the various datasets of the D4RL benchmark demonstrate that BiTrajDiff yields results superior to state-of-the-art counterparts.

Last Updated in June 9, 2025