Jinbin Bai

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Education

National University of Singapore, M.Comp. in Artificial Intelligence, Thesis Track 2022 – 2024
Research Topic: Controllable Content Creation

Nanjing University, B.S. in Computer Science 2017 – 2021
Outstanding Student, Outstanding Graduate, ***GPA****: 90/100* ***Ranking****: Top 10%*

Shanghai Jiao Tong University 2020 – 2020
C9 League University-sponsored Exchange Program (Spring Semester, 5 students each semester)

Selected Publications

1. **Jinbin Bai**, Chunhui Liu, Feiyue Ni, Haofan Wang, Mengying Hu, Xiaofeng Guo, Lele Cheng. *LaT: Latent Translation with Cycle-Consistency for Video-Text Retrieval*, arXiv preprint arXiv:2207.04858.

2. Tian Ye, Sixiang Chen, Yun Liu, Yi Ye, **Jinbin Bai**, Erkang Chen. *Towards Real-time High-Definition Image Snow Removal: Efficient Pyramid Network with Asymmetrical Encoder-decoder Architecture*, Proceedings of the Asian Conference on Computer Vision (**ACCV**), Macau SAR, China, 2022.

3. Yaqi Xie, Chen Yu, Tongyao Zhu, **Jinbin Bai**, Ze Gong, Harold Soh. *Translating Natural Language to Planning Goals with Large-Language Models.* arXiv preprint arXiv:2302.05128.

4. Zhuoran Zhao*, **Jinbin Bai***, Delong Chen, Debang Wang, Yubo Pan. *Taming Diffusion Models for Music-driven Conducting Motion Generation.* Accepted by **AAAI 2023 Summer Symposium**. **Best Paper Award**.

5. Jingxia Jiang*, **Jinbin Bai***, Yun Liu, Junjie Yin, Sixiang Chen, Tian Ye, Erkang Chen. *RSFDM-Net: Real-time Spatial and Frequency Domains Modulation Network for Underwater Image Enhancement.* Accepted by **ICIP 2023**.

6. Tian Ye*, Sixiang Chen*, **Jinbin Bai***, Yun Liu, Erkang Chen. *Adverse Weather Removal with Codebook Priors.* Accepted by **ICCV 2023**.

7. Sixiang Chen*, Tian Ye*, **Jinbin Bai**, Shi Jun, Lei Zhu. *Sparse Sampling Transformer with Uncertainty-Driven Ranking for Unified Removal of Raindrops and Rain Streaks.* Accepted by **ICCV 2023**.

8. Tian Ye, Sixiang Chen, Yun Liu, Wenhao Chai, **Jinbin Bai**, Wenbin Zhou, Yunchen Zhang, Jiang Mingchao, Erkang Chen, Chenghao Xue. *Sequential Affinity Learning for Video Restoration.* Accepted by **ACM MM 2023**.

9. Sixiang Chen, Tian Ye, Yun Liu, **Jinbin Bai**, Haoyu Chen, Yunlong Lin, Jun Shi, Erkang Chen. *CPLFormer: Cross-scale Prototype Learning Transformer for Image Snow Removal.* Accepted by **ACM MM 2023**.

10. Jingxia Jiang*, Tian Ye*, **Jinbin Bai***, Sixiang Chen, Wenhao Chai, Shi Jun, Yun Liu, Erkang Chen. *Five A+ Network: You Only Need 9K Parameters for Underwater Image Enhancement.* Accepted by **BMVC 2023**.

11. ..., **Jinbin Bai**, ..., Forrest N. Iandola. *CVPR 2023 Text Guided Video Editing Competition.* Under review.

12. **Jinbin Bai**, Zhen Dong, Casey Zhou, ... *Integrating View Conditions for Image Synthesis.* Under review.

Experience

★ Generating Capability Group, Collov Home Design May. 2023 - Current
AI Engineer Intern (also work as a RA in UC Berkeley with Dr. Zhen Dong) *San Fransicso Bay Area*

- Led the research of **Integrating View Conditions for Image Synthesis**
- Participated in the development of **Structure-Preserving Cabinet Generation: Towards Realistic and Consistent Furniture Synthesis**

National University of Singapore Aug. 2022 - Current
Research Assistant *Singapore*

- [Ongoing] Led the research of **Structure-Preserving Video Editing via Text-to-Image Diffusion Model**
- ★ Co-organized the **LOVEU - Text-Guided Video Editing** International Challenge at CVPR 2023
- ★ Led the project of **Taming Diffusion Models for Music-driven Conducting Motion Generation**
- ★ Participated the research of **Translating Natural Language to Planning Goals with Large-Language Models**

Intelligent Creation, ByteDance Inc Apr. 2022 – Jul. 2022
Research Intern *Beijing, China*

- Led the research of **Video-Text Pre-training with Prompt Learning and Few-shot Learning**
- Participated in the improvement of **AutoTransition: Learning to Recommend Video Transition Effects**

★ Multimedia Understanding, Kuaishou Technology Oct. 2021 – Mar. 2022
Research Intern *Beijing, China*

- ★ Led the research of **LaT: Latent Translation with Cycle-Consistency for Video-Text Retrieval**
- Participated in the testing of the **Davinci Project**, a project that retrieves relevant video clips by given texts and splices them into short videos

Computer Vision and Computer Graphics, Nanjing University Oct. 2018 – Mar. 2021
Research Assistant *Nanjing, China*

- Led the research of **Semantic-aware Cartoon Style Transfer**
- Led the research and development of **Classification of Acoustic Scenes Using Convolutional Neural Networks**

Patent

CN111027675A: A method and system for automatic adjustment of multimedia playback settings

Projects

diffusers: Contribute to a new class StableDiffusionXLControlNetInpaintPipeline. (+ 2050 lines)

Compiler: Using C to implement a simplified compiler which includes lexical and syntax analysis, semantic analysis, intermediate code generation and optimization, target code generation and optimization. And as a result, this program can transfer c codes to mips codes.

Beauty Software: Using Matlab and Matlab GUI to implement a beauty software which includes some image processing and beauty functions.

Character Relationships Analysis: Using MapReduce to model and analyze the character relationships in Jin Yong's novels, which includes feature extraction (character co-occurrence statistics), character relationship graph construction and feature normalization, PageRank calculation, label propagation, and finally imported into Gephi for visualization.

Image Mosaics: Using Python to implement an image stitcher that uses image warping and homographies to automatically create an image mosaic.

Comprehensive Experiment of Computer System: Using C to implement a simplified x86 emulator which includes using virtual registers to simulate data storage and operations, x86 instruction's decoding and execution, segmented page storage structure of computer system, exceptions, interrupts and IO, etc. Finally, we can run PAL1 on our x86 emulator

Comprehensive Experiment of Operation System: Using C to implement a simplified operation system which includes system boot, system call, process switch and thread switch, process synchronization, file system.

Comprehensive Experiment of Compiler: Using C to implement a simplified compiler which includes lexical analysis, syntax analysis, semantic analysis, intermediate code generation, intermediate code optimization, target code generation, target code optimization.

Selected Honors

2021: Outstanding Graduate of Nanjing University

2020: Shanyuan Overseas Exchange Scholarship (Top 1%), Nanjing University

2019: National Excellent Undergraduate Innovation Project, Ministry of Education of P.R.China.

2019: Outstanding Student of Nanjing University

2018: Heren Scholarship (Top 1%), Nanjing University

Miscellaneous

Languages: Python, C, C++, LaTeX, Markdown, Matlab, JavaScript

Packages: PyTorch, diffusers, gradio