

Jia, Bochun

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Education

Institut Polytechnique de Paris

M.S. in DataAI — Data and Artificial Intelligence

France

Sep 2025 – Jul 2027

Northeastern University

B.S. in Information Management and Information System

China

Sep 2018 – Jul 2022

Research Interests: Diffusion Models, Multimodal Vision–Language Modeling, Generative AI.

Research Projects

Latent-Space Editing via Semantic Guidance

Nov 2025 – Present

Objective: Enabling controllable object-level image editing with semantic and spatial consistency

- Formulated the task as a **feature-conditioned latent generative modeling problem**, utilizing **CLIP/CLIPSeg** for semantic-guided object extraction and insertion to achieve context-aware image composition.
- Designed a **dual-stage scaling strategy** combining pixel-space normalization with latent-space resizing, effectively preserving structural and semantic consistency during object composition.
- Implemented **DiT-based diffusion refinement with Flow Matching**, optimizing noise control via ODE sampling to enhance global visual coherence and eliminate boundary artifacts.

Ongoing Research. Investigating **text-driven image editing in latent space**, focusing on the emergence of semantic control during diffusion trajectories and on designing protocols for edit fidelity evaluation.

Cycle-Consistency Reward for Neural Style Transfer

Fall 2025

Objective: Achieving automatic content–style trade-off without manual hyperparameter tuning

- Proposed a **Cycle-Consistency Reward Model** functioning as both a **training-time loss** and an **inference-time Best-of-N selector**, enabling self-adaptive optimization for style transfer tasks.
- Validated the framework across **AdaIN** and **SDS-based Style Matching Score (SMS)** architectures, demonstrating superior stability and automatic content–style balancing compared to baseline methods.
- Integrated **CycleReward** with **Score Distillation Sampling (SDS)** to distill diffusion-quality style features into a real-time feed-forward generator.

Work Experience

Citigroup Services and Technology

Shanghai, China

Data Engineer / Software Engineer

Jul 2022 – Jul 2025

- Built and maintained **large-scale distributed data systems** supporting **reproducible and robust machine learning workflows** across multiple business units.
- Developed scalable data-processing and automation infrastructure, focusing on **data quality, monitoring, and pipeline reliability** in production environments.
- Integrated **AI-assisted development tools** into data engineering workflows, including **automatic SQL translation and code generation**, significantly improving development efficiency and reducing manual overhead.

Technical Skills

Programming & Frameworks: Python, PyTorch, TensorFlow, C++, Java, Docker, Git

AI & Research Focus: Transformers, Diffusion Models (DiT, DDPM), Computer Vision, Multimodal Learning, Applied NLP