

EDUCATION

The University of Hong Kong
Ph.D. student in Computer Science
Supervisor: Prof. Kenneth K.Y. Wong

Hong Kong SAR
Aug. 2023 – Expected July 2027

Harbin Institute of Technology
M.Sc. in Computer Science
Supervisor: Prof. Wangmeng Zuo
B.Sc. in Computer Science
Supervisor: Prof. Wangmeng Zuo

Harbin
Sep. 2020 – July 2022
Aug. 2016 – July 2020

RESEARCH INTEREST

Research on high-quality and efficient visual content generation.

PUBLICATIONS

* denotes equal contribution

Video Generation Acceleration and Efficiency Improvement

- **Zhengyao Lv**, Menghan Xia, Xintao Wang, Kwan-Yee K. Wong. **DUO-VSR: Dual-Stream Distillation for One-Step Video Super-Resolution**. CVPR 2026.
 - We introduce DUO-VSR, a one-step video super-resolution framework that integrates distribution-matching and adversarial supervision to achieve over 50× speedup while preserving high-fidelity reconstruction.
- **Zhengyao Lv***, Chenyang Si*, Tianlin Pan, Zhaoxi Chen, Kwan-Yee K. Wong, Yu Qiao, Ziwei Liu. **Dual-Expert Consistency Model for Efficient and High-Quality Video Generation**. ICCV 2025.
 - We propose DCM based on consistency distillation, which decouples the optimization of semantic and detail distillation, reducing the sampling steps from 50 to 4 while maintaining visual quality.
- **Zhengyao Lv**, Chenyang Si, Junhao Song, Zhenyu Yang, Yu Qiao, Ziwei Liu, and Kwan-Yee K. Wong. **Faster-cache: Training-free video diffusion model acceleration with high quality**. ICLR 2025.
 - We develop FasterCache, a training-free DiT sampling acceleration method achieving over 1.5× speedup. **FasterCache has been integrated into Diffusers and adapted into video generation model WAN 2.1.**
- Lei Ke, Hubery Yin, Gongye Liu, **Zhengyao Lv**, Jingcai Guo, Chen Li, Wenhan Luo, Yujiu Yang, Jing Lyu. **FlowSteer: Guiding Few-Step Image Synthesis with Authentic Trajectories**. CVPR 2026 Under Review.
 - We propose FlowSteer, a ReFlow-based distillation method that guides the student along the authentic generation trajectories of teacher model, improving few-step sampling quality and efficiency.

Quality and Diversity Enhancement in Visual Content Synthesis

- **Zhengyao Lv***, Tianlin Pan*, Chenyang Si*, Zhaoxi Chen, Wangmeng Zuo, Ziwei Liu, Kwan-Yee K. Wong. **Rethinking Cross-Modal Interaction in Multimodal Diffusion Transformers**. ICCV 2025.
 - We introduce TACA, a parameter-efficient method that rebalances multimodal interactions through temperature scaling and timestep-dependent adjustment, improving the text-image alignment.
- **Zhengyao Lv**, Yuxiang Wei, Wangmeng Zuo, and Kwan-Yee K. Wong. **Place: Adaptive layout-semantic fusion for semantic image synthesis**. CVPR 2024 (**Highlight**).
 - We propose PLACE, a framework that enhances semantic image synthesis by combining layout and semantic features in a timestep-adaptive manner, achieving improved layout alignment.
- **Zhengyao Lv**, Xiaoming Li, Zhenxing Niu, Bing Cao, and Wangmeng Zuo. **Semantic-shape adaptive feature modulation for semantic image synthesis**. CVPR 2022.
 - For semantic image synthesis, we propose a shape context descriptor and semantic-shape adaptive feature modulation (SAFM) to better capture spatial relations in semantic maps, enabling realistic detail synthesis.
- **Zhengyao Lv**, Xiaoming Li, Xin Li, Fu Li, Tianwei Lin, Dongliang He, and Wangmeng Zuo. **Learning semantic person image generation by region-adaptive normalization**. CVPR 2021.

- We proposed SPGNet, a two-stage framework for human pose transfer that first predicts target semantic parsing maps and uses region-adaptive normalization to generate realistic, semantically consistent results.
- Ying Yang*, **Zhengyao Lv***, Tianlin Pan, Haofan Wang, Binxin Yang, Hubery Yin, Chen Li, Chenyang Si **DiverseAR: Boosting Diversity in Bitwise Autoregressive Image Generation**. CVPR 2026 Under Review.
 - We introduce DiverseAR, which improves sample diversity in bitwise autoregressive models through adaptive logits scaling and energy-based path search, enhancing diversity without compromising visual quality.
- Hao, Shaozhe, Kai Han, **Zhengyao Lv**, Shihao Zhao, and Kwan-Yee K. Wong. **ConceptExpress: Harnessing diffusion models for single-image unsupervised concept extraction**. ECCV 2024 (Oral).
 - We proposed ConceptExpress for unsupervised concept extraction (UCE) that uses pretrained diffusion models to automatically locate, disentangle, and optimize concepts in images without human annotations.

EXPERIENCE

Kuaishou Kling

Research Intern Mentor: Dr. Menghan Xia

Shenzhen

June 2025 - present

Researched **efficient video super-restoration**.

- Proposed DUO-VSR, an efficient video super-resolution method, which has been submitted to CVPR 2026.

Shanghai AI Lab

Research Intern Mentor: Dr. Chenyang Si

Shanghai

June 2024 - April 2025

Researched **efficient video sampling and synthesis methods**.

- Developed FasterCache, a training-free diffusion transformer video sampling acceleration method achieving over 1.5× speedup on a single GPU. This work is accepted to ICLR 2025 with me as the first author.
- Designed the DCM based on consistency distillation, reducing sampling steps of DiT from 50 to 4 while maintaining visual quality for video synthesis. This work is accepted to ICCV 2025 with me as the first author.

Alibaba Cloud

Algorithm Engineer

Hangzhou

July 2022 - July 2023

Performed research on **pre-encoding video enhancement algorithms**.

- Participated in the development and deployment of multiple video quality enhancement models, with both their effectiveness and efficiency verified in real-world production settings.

Alibaba Cloud

Research Intern Mentor: Dr. Yunjin Chen

Hangzhou

June 2021 - Aug. 2021

Performed research on **pre-encoding video enhancement algorithms**.

- Researched and developed a quality enhancement model for classic animations, achieving superior efficiency and visual quality compared to existing online models.

Baidu VIS

Research Intern

Beijing

June 2020 - Nov. 2020

Researched human pose transfer and explored its application to pose-driven human image animation.

- Proposed SPGNet, a human pose transfer method that was accepted to CVPR 2021.

HONORS & AWARDS

- Arthur & Louise May Memorial Scholarship (HKU) 2023-2024
- Postgraduate Scholarships (HKU) 2023-2027

PROFESSIONAL SERVICE

- TA at HKU for: COMP3317 Computer Vision (2024, 2025, 2026)
- Conference reviewer for: CVPR, ICCV, ECCV, ICLR, NeurIPS, AAAI, ACM MM
- Journal reviewer for: TPAMI, IJCV, TCSVT