ZEQIANG LAI

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Education

The Chinese University of Hong Kong Jan 2025 - Present
MMLab, PhD in Information Engineering, Supervised by Xiangyu Yue Hong Kong, China

Beijing Institute of Technology Sep 2016 - June 2023
M.S. in Computer Science and Technology, Supervised by Ying Fu Beijing, China
B.E. in Computer Science and Technology

Work Experience

Tencent Holdings Ltd. Jan 2024 - Present
Researcher (as Intern Since 2025), Tencent Hunyuan Shenzhen, China

- 3D generation, pretraining architecture and optimization; infra; model acceleration.
- *Core research* and *Co-project leader* of HY3D 2.0, 2.5, 3.0. *Core research* on HY3D-PolyGen 1.0.
- *First author* of LATTICE, NaTex, and FlashVDM.

iFLYTEK Co., Ltd. July 2023 - Dec 2023
Researcher, iFLYTEK Research Hefei, China

- Worked on image editing, model pretraining and data engineering.

Shanghai AI Laboratory Apr 2022 - June 2023
Research Intern, OpenGVLab Beijing, China

- Worked on multimodal generation, architecture research.
- *Co-first author* of ControlLLM, VisionLLMv2 and MuLan.

Honars & Awards

Jiqizhixin Annual Top 20 Best Large Models – HY3D 3.0	2025
Tencent Outstanding Technology Award	2025
Tencent TEG Multimodal Models, Business Application Pioneer Award	2025
Tencent TEG SEVP Technology Breakthrough Award	2025
CIE–Tencent Doctoral Research Fellowship	2025
Hong Kong Postgraduate Scholarships	2025
China National Scholarship	2022
Academic Scholarship, Beijing Institute of Technology	2020,2022
Chinese Mathematical Olympiad (CMO), First Prize	2018
Outstanding Student Scholarship, Beijing Institute of Technology	2017,2018

Research Highlights

NaTex (HY3D 3.5) 2025

- The first texture latent diffusion model that unevils the strong potential of native texture generation. Greatly surpass previous methods on texture-geometry alignment.

LATTICE (HY3D 2.5/3.0) 2025

- A milestone in 3D generation: the first high-fidelity shape generation model with unparalleled detail, vastly outperforming all previous models.

FlashVDM (HY3D 2.0 Turbo) 2025

- 32x acceleration on high-quality shape generation (within 1 second on 4090).

Publications (Full List)

Technical Reports

- (**Core Research** on PolyGen) *Hunyuan3D Studio: End-to-end AI Pipeline for Game-Ready 3D Asset Generation*, 2025.
- (**Core Research & Co-Project Leader**) *Hunyuan3D 2.5: Towards High-Fidelity 3D Assets Generation with Ultimate Details*, 2025.
- (**Core Research** on ShapeGen) *Hunyuan3D 2.1: From Images to High-Fidelity 3D Assets with Production-Ready PBR Material*, 2025.
- (**Core Research** on ShapeGen) *Hunyuan3D 2.0: Scaling Diffusion Models for High Resolution Textured 3D Assets Generation*, 2025.
- (**Core Research**) *Hunyuan3d-Omni: A Unified Framework for Controllable Generation of 3D Assets*, 2025.

Preprints

- **Zeqiang Lai***, Yunfei Zhao*, Zibo Zhao, Haolin Liu, Qingxiang Lin, Jingwei Huang, Chunchao Guo, Xiangyu Yue. *LATTICE: Democratize High-Fidelity 3D Generation at Scale*. Preprint, 2025.
- **Zeqiang Lai***, Yunfei Zhao*, Zibo Zhao, Xin Yang, Xin Huang, Jingwei Huang, Xiangyu Yue, Chunchao Guo. *NaTex: Seamless Texture Generation as Latent Color Diffusion*. Preprint, 2025.
- Xinhao Yan, Jiachen Xu, Yang Li, Changfeng Ma, Yunhan Yang, Chunshi Wang, Zibo Zhao, **Zeqiang Lai**, Yunfei Zhao, Zhuo Chen, Chunchao Guo. *X-Part: High Fidelity and Structure Coherent Shape Decomposition*. Preprint, 2025.
- **Zeqiang Lai***, Yuchen Duan*, Jifeng Dai, Ziheng Li, Ying Fu, Hongsheng Li, Yu Qiao, Wenhai Wang. *Denoising Diffusion Semantic Segmentation with Mask Prior Modeling*. Preprint, 2025.

Publications

- **Zeqiang Lai**, Yunfei Zhao, Zibo Zhao, Haolin Liu, Fuyun Wang, Huiwen Shi, Xianghui Yang, Qingxiang Lin, Jingwei Huang, Yuhong Liu, Jie Jiang, Chunchao Guo, Xiangyu Yue. *Unleashing Vecset Diffusion Model for Fast Shape Generation*. Proceedings of the IEEE/CVF International Conference on Computer Vision (**ICCV**), 2025 (**Highlight**).
- Sen Xing*, Muyan Zhong*, **Zeqiang Lai***, Liangchen Li, Jiawen Liu, Yaohui Wang, Jifeng Dai, Wenhai Wang. *Mulan: Adapting Multilingual Diffusion Models for Hundreds of Languages with Negligible Cost*. International Conference on Machine Learning (**ICML**), 2025.
- Jiannan Wu*, Muyan Zhong*, Sen Xing*, **Zeqiang Lai***, Zhaoyang Liu*, Wenhai Wang, Zhe Chen, Xizhou Zhu, Lewei Lu, Tong Lu, Ping Luo, Yu Qiao, Jifeng Dai. *VisionLLM v2: An End-to-End Generalist Multimodal Large Language Model for Hundreds of Vision-Language Tasks*. Advances in Neural Information Processing Systems (**NeurIPS**), 2024
- Zhaoyang Liu*, **Zeqiang Lai***, Zhangwei Gao, Erfei Cui, Zhiheng Li, Xizhou Zhu, Lewei Lu, Qifeng Chen, Yu Qiao, Jifeng Dai, Wenhai Wang. *ControlLLM: Augment Language Models with Tools by Searching on Graphs*. European Conference on Computer Vision (**ECCV**), 2024.
- **Zeqiang Lai**, Ying Fu, Jun Zhang. *Hyperspectral Image Super Resolution with Real Unaligned RGB Guidance*. IEEE Transactions on Neural Networks and Learning Systems (**TNNLS**), 2024.
- **Zeqiang Lai**, Chenggang Yan, Ying Fu. *Hybrid Spectral Denoising Transformer with Guided Attention*. Proceedings of the IEEE/CVF International Conference on Computer Vision (**ICCV**), 2023.
- **Zeqiang Lai***, Kaixuan Wei*, Ying Fu, Philipp Härtel, Felix Heide. *∇-Prox: Differentiable Proximal Algorithm Modeling for Large-scale Optimization*. ACM Transactions on Graphics (**SIGGRAPH TOG**), 2023.
- **Zeqiang Lai**, Kaixuan Wei, Ying Fu. *Deep Plug-and-Play Prior for Hyperspectral Image Restoration*. (**Neurocomputing**), 2022.

Services

- Reviewer: ICML, NeurIPS, ICLR, CVPR, ICCV, ECCV, TNNLS, AAAI