KUNHAO LIU

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https://kunhao-liu.github.io/

EDUCATION

Ph.D. Student of Computer Science, Nanyang Technological University, Singapore — Aug. 2022 - Now
Supervised by Prof. Shijian Lu — **GPA**: 4.5/5.0

Bachelor of Software Engineering, Beihang University, Beijing, China — Sep. 2018 - July 2022
Supervised by Prof. Lu Sheng — **GPA**: 3.8/4.0

RESEARCH VISITS & INTERNSHIPS

Research Intern, **ARC Lab, Tencent** — Feb. 2025 - Feb. 2026
Supervised by Dr. Wenbo Hu and Dr. Ying Shan

Visiting Student, **Max Planck Institute for Informatics** — Jul. 2023 - Jan. 2024
Supervised by Prof. Christian Theobalt and Dr. Fangneng Zhan

RESEARCH EXPERIENCE

Real-Time Long Video Generation. — Feb. 2025 - Oct. 2025
Project: Rolling Forcing: Autoregressive Long Video Diffusion in Real Time.

- Enables the generation of multi-minute videos with minimal error accumulation.
- Achieves real-time video streaming at 16 fps on a single GPU.
- Supports interactive video streaming, allowing users to modify prompts dynamically.

Video Diffusion Priors for Novel View Synthesis. — Mar. 2024 - Feb. 2025
Project: Novel View Extrapolation with Video Diffusion Priors.

- We present one of the first works to show that pretrained video diffusion priors can boost view synthesis.
- We repurpose video diffusion models to refine renderings of NeRF, 3DGS, and point clouds without fine-tuning.
- Our method demonstrates broad applicability, supporting multi-view images, single views, and monocular videos.

Neural Radiance Fields & Gaussian Splatting — Aug. 2022 - Mar. 2024
Project: Weakly Supervised 3D Open-vocabulary Segmentation; StyleRF: Zero-shot 3D Style Transfer of Neural Radiance Fields; StyleGaussian: Instant 3D Style Transfer with Gaussian Splatting.

- We present the first 3D open-vocabulary segmentation method for radiance fields.
- We introduce an innovative framework that can generate zero-shot high-quality 3D stylization.
- We introduce the fastest framework for 3D Gaussian Splatting stylization.

PUBLICATIONS

Kunhao Liu, Wenbo Hu, Jiale Xu, Ying Shan, Shijian Lu. *Rolling Forcing: Autoregressive Long Video Diffusion in Real Time.* arXiv preprint arXiv: 2509.25161, 2025.

Kunhao Liu, Ling Shao, Shijian Lu. *Novel View Extrapolation with Video Diffusion Priors.* arXiv preprint arXiv: 2411.14208, 2024.

Kunhao Liu, Fangneng Zhan, Christian Theobalt, Ling Shao, Shijian Lu. *StyleGaussian: Instant 3D Style Transfer with Gaussian Splatting.* In Proceedings of **SIGGRAPH Asia** Conference, 2024.

Kunhao Liu, Fangneng Zhan, Jiahui Zhang, Muyu Xu, Yingchen Yu, Abdulmotaleb El Saddik, Christian Theobalt, Eric Xing, Shijian Lu. *Weakly Supervised 3D Open-vocabulary Segmentation.* Advances in Neural Information Processing Systems (**NeurIPS**), 2023.

Kunhao Liu, Fangneng Zhan, Yiwen Chen, Jiahui Zhang, Yingchen Yu, Abdulmotaleb El Saddik, Shijian Lu, Eric Xing. *StyleRF: Zero-shot 3D Style Transfer of Neural Radiance Fields.* IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2023.

Jiahui Zhang, Yuelei Li, Anpei Chen, Muyu Xu, **Kunhao Liu**, Jianyuan Wang, Xiao-Xiao Long, Hanxue Liang, Zexiang Xu, Hao Su, Christian Theobalt, Christian Rupprecht, Andrea Vedaldi, Hanspeter Pfister, Shijian Lu, Fangneng Zhan. *Advances in feed-forward 3d reconstruction and view synthesis: A survey* arXiv preprint arXiv:2507.14501, 2025.

Weijing Tao, Biwen Lei, **Kunhao Liu**, Shijian Lu, Miaomiao Cui, Xuansong Xie, Chunyan Miao. *DivAvatar: Diverse 3D Avatar Generation with a Single Prompt.* IEEE/CVF Winter Conference on Applications of Computer Vision (**WACV**), 2025.

Jiahui Zhang, Fangneng Zhan, Yingchen Yu, **Kunhao Liu**, Rongliang Wu, Xiaoqin Zhang, Ling Shao, Shijian Lu. *Pose-Free Neural Radiance Fields via Implicit Pose Regularization.* IEEE/CVF International Conference on Computer Vision (**ICCV**), 2023.

Zuhao Yang, Fangneng Zhan, **Kunhao Liu**, Muyu Xu, Shijian Lu. *AI-Generated Images as Data Source: The Dawn of Synthetic Era.* arXiv preprint arXiv:2310.01830, 2023.

ACADEMIC SERVICES

Reviewer: NeurIPS 2025, ICCV 2025, CVPR 2025, ICML 2025, SIGGRAPH 2025, ICLR 2025, AAAI 2025, WACV 2025, SIGGRAPH Asia 2024, NeurIPS 2024, ECCV 2024, CVPR 2024, BMVC 2024, IEEE TVCG, Computer Graphics Forum, TPAMI

Program committee: CVPR 2023 workshop (Generative Models for Computer Vision), CVPR 2024 workshops (Neural Rendering Intelligence, 2nd Generative Models for Computer Vision)

AWARDS AND HONORS

Outstanding Graduate July 2022

Outstanding Graduation Thesis July 2022

Scholarship for Academic Records Sept. 2019-2021

SKILLS AND OTHERS

Languages: Chinese (native), English (fluent)

Programming Languages: Python, C/C++, Java, Swift, JavaScript, HTML, CSS

Tools: Pytorch, CUDA, Vue, Swift UI, Blender