PENGHAO WANG

wangph12025@shanghaitech.edu.cn | authoritywang.github.io

EDUCATION

ShanghaiTech University   *2021-2025*
Bachelor's degree, Major in Computer Science and Technology
GPA 3.56/4.0

ShanghaiTech University   *2025-Present*
Ph.D candidate, Major in Computer Science and Technology
Advisor Jiayuan Gu

RESEARCH INTERESTS

My research interests lie in 3D vision and graphics, with a focus on 3D generation and reconstruction. My long-term goal is to digitally capture the physical world, enabling simulation environments and perceptual foundations for robot learning and embodied intelligence. Recently, my work has focused on articulated and part-level object understanding and generation, as well as interacted scene generation.

PUBLICATIONS

- **ArtLLM: Generating Articulated Assets via 3D LLM**
  Penghao Wang, Siyuan Xie, Hongyu Yan, Xianghui Yang, Jingwei Huang, Chunchao Guo, Jiayuan Gu
  CVPR2026

- **HY3D-Bench: Generation of 3D Assets**
  Team Hunyuan3D **Penghao Wang** is a core contributor
  Technical Report [Paper]

- **Hunyuan3D-Omni: A Unified Framework for Controllable Generation of 3D Assets**
  Team Hunyuan3D **Penghao Wang** is a core contributor
  Technical Report [Paper]

- **PartNeXt: A Next-Generation Dataset for Fine-Grained and Hierarchical 3D Part Understanding**
  Penghao Wang, Yiyang He, Xin Lv, Yukai Zhou, Lan Xu, Jingyi Yu, Jiayuan Gu
  NeurIPS DB Track 2025 [Paper]

- **V³: Viewing Volumetric Videos on Mobiles via Streamable 2D Dynamic Gaussians**
  Penghao Wang, Zhirui Zhang, Liao Wang, Kaixin Yao, Siyuan Xie, Jingyi Yu, Minye Wu, Lan Xu
  SIGGRAPH Asia 2024 (ACM TOG)[Paper]

- **HiFi4G: High-Fidelity Human Performance Rendering via Compact Gaussian Splatting.**
  Yuheng Jiang, Zhehao Shen, **Penghao Wang**, Zhuo Su, Yu Hong, Yingliang Zhang, Jingyi Yu, Lan Xu.
  CVPR2024 [Paper]

- **NEPHELE: A Neural Platform for Highly Realistic Cloud Radiance Rendering.**
  Haimin Luo, Siyuan Zhang, Fuqiang Zhao, Haotian Jing, **Penghao Wang**, Zhenxiao Yu, Dongxue Yan, Junran Ding, Boyuan Zhang, Qiang Hu, Shu Yin, Lan Xu, Jingyi Yu.
  [Paper]

EXPERIENCE

Tencent Hunyuan3D, Research Intern - Mentor: Jingwei Huang   *2025.7 - 2026.2*

- **Controllable 3D Generation with Multi-modal Conditions**: Developed a unified conditional 3D generation model to address the ambiguity and geometric limitations of text or image-only methods. I led the modeling and training of the point cloud branch, achieving enhanced controllability and geometric fidelity.

- **Articulated 3D Asset Generation**: Developed a two-stage framework for generating realistic, interactable articulated assets from a single image. Our method significantly surpasses existing retrieval methods in both generalization capability and geometric quality, supporting downstream embodied simulation scenarios.

ShanghaiTech SEA Lab, Student Researcher - Advisor: Jiayuan Gu   *2024.12 - Present*

- **Part Level Dataset Research**: Developed a next-generation 3D part dataset with a connectivity aware, face level annotation pipeline. The annotated dataset PartNeXt has 2x categories and preserves original texture compared with prior benchmarks PartNet, providing a new foundation for 3D part understanding and structured generation.

- **3D Part Segmentation Research**: Explored part segmentation by introducing mask embeddings into 3D shape VAE, achieving finer segmentation of small parts and significantly improved quality compared to multi-view SAM-based approaches.

ShanghaiTech VRVC Lab, Student Researcher - Advisor: Jingyi Yu & Lan Xu   *2022.8 - 2024.12*

- **Streamable Human-Centric Volumetric Video**: Proposed a temporally consistent training framework for dynamic 3D Gaussian Splatting scenes and integrated video codec-based compression of 3DGS sequences, enabling high-quality, streamable volumetric video on mobile platforms.

- **Scene Generation from Single RGB Image**: Explored object-centric 3D scene generation from a single RGB image. By leveraging foundation 3D generation models for individual objects, and aligning them with estimated depth point clouds, our method can recover object poses and spatial layouts.

NeuDim Digital, Research Intern   *2022.8 - 2024.12*

- **3DGS Compression Research**: Investigated compression strategies for 3DGS to reduce transmission latency and bandwidth in real-time applications. Proposed a pruning and codebook-based compression scheme, achieving up to $\sim 25\times$ compression on average while preserving visual fidelity.

- **Radiance Field Reconstruction Backend Development**: Led the development of backend systems for a radiance-field-based neural reconstruction platform, supporting multiple reconstruction algorithms, with flexible scheduling and algorithm switching to facilitate large-scale experimentation and deployment.

AWARDS

Shanghaitech University Outstanding Graduate	*2025.06*
Shanghaitech University Merit Student 2024	*2024.12*
Shanghaitech University Merit Student 2022	*2022.12*
National College Students Robot Contest National 3rd Prize	*2022.08*
Robomaster Super Tournament Regional Competition (Eastern Division) 2nd Prize	*2022.06*
Robomaster Intramural Competition Champion	*2021.12*