Wenxu Zhou

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Wenxu Zhou | Wenxu Zhou | 0009-0005-3078-295X | Anhui, China

Profile

Master's student and researcher specializing in gaussian splatting, self-supervised learning, and 3D scene generation. Research interests include 3D computer vision and medical image analysis.

Education

- **Anhui University** *Fall 2019 - Spring 2023*
  B.S. in Electronics Information Engineering
- **University of Science and Technology of China** *Fall 2023 - Present*
  M.S. in Communication Engineering
  - **Advisor**: Prof. Dong Yin
  - **Thesis**: Research on Lesion Identification in Endoscopic Scenes Based on Multi-modal Perception Fusion
  - **Specialization**: Machine Learning & Computer Vision

Research Experience

- **Intelligent Information Processing Laboratory (USTC)** *Sept. 2023 - Present*
  Focus: Industrial Shape Analysis, Dynamic Scene Reconstruction and Semantic Understanding.
  - **Intelligent Anode Copper Plate Detection Terminal**: Developed an industrial-grade copper plate inspection method based on image segmentation and morphological computation; built a user-friendly GUI, and achieved high-precision ranging **(successfully deployed in industrial application, accuracy: $\pm$2mm)**.
  - **Efficient Endoscope Scene Modeling and Analysis**: Realized high-fidelity geometric dynamic scene modeling using Gaussian Splatting; achieved open-vocabulary semantic understanding of gastrointestinal scenes via semantic encoding. Constructed a large-scale 2D-3D endoscopic dataset. We are currently pre-training a self-supervised multi-modal visual encoder, fusing image and point cloud features. Subsequent work will involve fine-tuning the encoder based on the ViT-Adapter for multiple medical analysis tasks.
- **Research Internship (Songying Technology)** *Jul. 2025 - Oct. 2025*
  Focus: 3D In-door Scene Synthesis.
  - **LLM-Driven 3D Scene Generation**: Constructed the IL3D dataset for LLM-driven scene synthesis (powered by Qwen3 series models); developed a text-guided 3D asset retrieval system and an SFT-based 3D indoor scene generation method. Open-sourced the dataset, code, and technical report [🌐].

Selected Publications

[1] **Wenxu Zhou**, Taoran Sun, Tianle Hu, Jiulin Li, Dong Yin. "Endo2DGS: Endoscopic Scene Reconstruction with High-fidelity Geometry." Chinese Conference on Pattern Recognition and Computer Vision (PRCV), 2025.

[2] **Wenxu Zhou**, Dong Yin. "Open-Vocabulary Endoscopic Scene Understanding via 4D Language Gaussian Splatting." IEEE International Conference on Bioinformatics and Biomedicine (BIBM), 2025.

[3] **Wenxu Zhou**, Kaixuan Nie, Hang Du, Dong Yin, Wei Huang, Siqiang Guo, Xiaobo Zhang, Pengbo Hu. "IL3D: A Large-scale Indoor Layout Dataset for LLM-Driven 3D Scene Generation." arXiv preprint arXiv:2510.12095.

Honors and Awards

- **First-Class Graduate Student Academic Scholarship:** USTC (2025).
- **Second-Class Graduate Student Academic Scholarship:** USTC (2023, 2024).
- **Second Prize in the Art Exhibition (Eagle of Light, Painting):** USTC Arts Education Center (2023).
- **Second-Class Academic Excellence Scholarship:** AHU (2020).

Academic Services

- **Teaching Assistant:** Data Structure and Algorithm, 2024 Fall.
- **Undergraduate Thesis Supervisor:** Guided 3 undergraduate students on graduation thesis.
- **Conference Reviewer:** PRCV, AAAI.

Skills

- **Programming:** Linux, Python, C/C++, PyTorch, MatLab, Qt, LaTeX.
- **3D Tools:** Open3d, Trimesh, PyTorch3D, Blender Software and Python API.
- **Technical Expertise:** Self-supervised Learning, Gaussian Splatting, SFT for LLM.
- **Languages:** Chinese (Native), English (Fluent).