

## BIOGRAPHICAL SKETCH

### Wenxu Zhou

Master Student

University of Science and Technology of China

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### (a) Education

University of Science and Technology of China    Master

Fall 2023 – Present

Anhui University

Bachelor

Fall 2019 – Spring 2023

### (b) Research and Professional Experience

*Intelligent Information Processing Laboratory: Research Assistant*

Sept. 2023 – Present

#### • Intelligent Anode Copper Plate Detection Terminal

*Focus: Industrial Shape Analysis.*

Designed and developed an industrial-grade anode copper plate measurement system leveraging image segmentation and morphological processing algorithms; engineered an intuitive user-friendly GUI for on-site operators, and achieved high-precision dimensional ranging with  $\pm 2\text{mm}$  accuracy, which has been successfully deployed in full-cycle industrial production scenarios.

#### • Endoscope Scene Modeling and Analysis

*Focus: Dynamic Scene Reconstruction and Semantic Understanding.*

Implemented high-fidelity dynamic 3D geometric modeling of gastrointestinal scenes via 3D Gaussian Splatting; enabled open-vocabulary semantic understanding of endoscopic environments through a custom semantic encoding pipeline.

Constructed a large-scale multi-modal 2D-3D gastrointestinal endoscopy dataset, and led the pre-training of a self-supervised multi-modal visual encoder with fused image and point cloud features. Designed a vision adapter-based fine-tuning framework for downstream medical image analysis tasks, with all above work forming the core content of my master's thesis.

*Songying Technology: Research Intern*

Jul. 2025 – Oct. 2025

#### • LLM-Driven 3D Scene Generation

*Focus: 3D In-door Scene Synthesis.*

Built the IL3D dataset for large language model (LLM) driven 3D indoor scene synthesis, optimized for Qwen3 series models; developed a text-guided 3D asset retrieval system and a supervised fine-tuning (SFT) based end-to-end 3D indoor scene generation pipeline.

Open-sourced full project deliverables, including the [dataset](#), [code](#), and [technical report](#).

### (c) Publications

#### *Most closely related*

1. Wenxu Zhou, Kaixuan Nie, Hang Du, Dong Yin, Wei Huang, Siqiang Guo, Xiaobo Zhang, and Pengbo Hu, [IL3d: A large-scale indoor layout dataset for llm-driven 3d scene generation](#) (2025), [arXiv:2510.12095 \[cs.CV\]](#) .
2. Wenxu Zhou and Dong Yin, Open-vocabulary endoscopic scene understanding via 4d lan-

guage gaussian splatting, in *2025 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)* (2025) pp. 7184–7191.

3. Wenxu Zhou, Taoran Sun, Tianle Hu, Jiulin Li, and Dong Yin, Endo2dgs: Endoscopic scene reconstruction with high-fidelity geometry, in *Pattern Recognition and Computer Vision*, edited by Josef Kittler, Hongkai Xiong, Jian Yang, Xilin Chen, Jiwen Lu, Weiyao Lin, Jingyi Yu, and Weishi Zheng (Springer Nature Singapore, Singapore, 2026) pp. 3–18.

#### **Other significant publications**

4. Tianle Hu, Wenxu Zhou, Zhihan Zhang, and Dong Yin, Idpt: Enhancing image detail perception with tree-based search for mllms, in *2025 6th International Conference on Machine Learning and Computer Application (ICMLCA)* (2025) pp. 903–907.
5. Taoran Sun, Wenxu Zhou, Muhammad Samsam Ul Haq, and Dong Yin, Hda-samunet: A medical image segmentation method based on vision mamba unet and medsam, in *2025 6th International Conference on Electronic Communication and Artificial Intelligence (ICECAI)* (2025) pp. 430–434.

#### **(d) Synergistic Activities**

1. Academic Services
  - Conference Reviewer: PRCV, AAAI.
2. Teaching and Mentorship
  - Teaching Assistant for [Data Structure and Algorithm \(210070.06\)](#), Fall 2024.
  - Undergraduate Thesis Supervisor: Guided 3 undergraduate students on graduation theses.

#### **(e) Honors and Scholarships**

- First-class Academic Scholarships for Postgraduates, by USTC, 2025.
- Second-class Academic Scholarships for Postgraduates, by USTC, 2023, 2024.
- Second Prize in the Art Exhibition , by USTC Arts Education Center, 2023.
- Second-class Academic Excellence Scholarship, by AHU, 2020.

#### **(f) Technical and Professional Skills**

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

#### **(g) References**

- Prof. [Dong Yin](#)  
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