

# Haiyang Ying

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Master student at Tsinghua University, Beijing, China

Interests: 3D Scene Reconstruction, Rendering and Understanding



## EDUCATION

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**Tsinghua University (THU)**, Beijing, China

Fall 2021 – Present

- *Master* in Data Science and Information Technology (expected June 2024)
- Research on 3D computer vision, co-supervised by Prof. Lu Fang and Prof. Qionghai Dai
- GPA: 3.96 / 4.0, Rank: 11 / 134

**Sun Yat-Sen University (SYSU)**, Guangzhou, China

Fall 2017 – Spring 2021

- *B.S.* in Electronic Information Science and Technology
- Research on 3D computer vision, supervised by Prof. Yulan Guo
- GPA: 4.0 / 4.0, Rank: 2 / 111

## RESEARCH INTERESTS

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My macro interest lies in modeling, reconstructing, and manipulating the 3D world in an interpretable manner. Specifically, my interests are shown below:

- 3D Scene Reconstruction and Rendering from Multi-views (such as MVS, NeRF, and SDF)
- Semantic-aware 3D Scene Parsing and Understanding
- Geometric Representations and Optimization with various Primitives (such as Quadrics)

## RESEARCH EXPERIENCE

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**Semantic-Aware Indoor Scene Reconstruction and Rendering**

Sep 2022 – Mar 2023

- Propose a semantic-aware hybrid representation for indoor scene modeling.
- Design a framework for fast indoor scene reconstruction and rendering with RGB-D input.
- Implement the proposed framework based on Instant-NGP to achieve higher-quality rendering.
- Advisor: Prof. Lu Fang and Prof. Qionghai Dai.

**Semantic-Aware Sparse View 3D reconstruction**

Sep 2021 – Aug 2022

- Propose a semantic-based representation to encode geometry, texture, and visibility of primitives.
- Design a pipeline for multi-view 3D reconstruction under sparse observations.
- Explore the capacity of implicit function for local representation and optimization.
- Advisor: Prof. Lu Fang

**Dynamic Vascular 3D Reconstruction (B.S. Thesis)**

Oct 2020 – Aug 2021

- Propose to model 3D dynamic tissue with implicit representation.
- Design a pipeline for 3D reconstruction with asynchronous multi-view cone-beam CT images.
- Advisor: Prof. Lu Fang and Prof. Yulan Guo

## PUBLICATIONS

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- **Haiyang Ying**, Baowei Jiang, Jinzhi Zhang, Di Xu, Tao Yu, Qionghai Dai, Lu Fang. “**PARF: Primitive-Aware Radiance Fusion for Indoor Scene Novel View Synthesis**”. (*Accepted by ICCV'2023*)

- **Haiyang Ying\***, Jinzhi Zhang\*, Yuzhe Chen, Zheng Cao, Jing Xiao, Ruqi Huang, Lu Fang. “**ParseMVS: Learning Primitive-aware Surface Representations for Sparse Multi-view Stereopsis**”. *Proceedings of the 30th ACM International Conference on Multimedia 2022*.

## HONORS AND AWARDS

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Chinese National Scholarship, by Minister of Education of China ( <b>top 2%</b> of the Grade)	2019, 2020
The First-class scholarship for outstanding students of SYSU	2018, 2019, 2020
The First Prize of Guangdong Province Electronic Design Competition	2018
Honorable Mention of Interdisciplinary Contest in Modeling (ICM)	2019, 2020

## SKILLS

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- Programming Languages: Python, C, C++, MATLAB
- Tools/Frameworks: Pytorch, Git, LaTeX, AutoCAD

## MISC

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- Birthdate: Mar 7th, 1999
- Hobbies: I love music and I'm good at singing and playing harmonica. I also like electronic design, swimming, watching animations and reading novels of variant countries.