Shanshan Pan

(+086)13335765163 | psshappystar@gmail.com

RESEARCH INTERESTS

I am interested in Computer Graphics and Computer Vision, with a particular focus on **structural analysis and reconstruction** of 3D models. My current research focuses on utilizing **geometric primitives** for model simplification and Level of Detail (LOD) generation, integrating both **traditional assembly techniques** and **neural optimization approaches** (e.g., 3DGS). Additionally, I am deeply interested in **generative 3D shape synthesis**, exploring innovative methods for automatic shape creation and manipulation.

EDUCATION

Xidian University Sep 2017 - Jun 2021

Software engineering, Bachelor Xian, China

- GPA: 3.80 / 4.00
- Thesis: *"3D Simplified Reconstruction Algorithm for Urban Architecture"*
- Supervisors: Prof. Hui Huang and Prof. Huimin Qin

Shenzhen University Sep 2021 - Jun 2024

Computer Science and Software Engineering, Master Shenzhen, China

- GPA: 3.33 / 4.00
- Thesis: *"Structural Analysis and Reconstruction for Urban Scenes"*
- Supervisor: Prof. Hui Huang

HONORS & AWARDS

The Second Prize Scholarship, Shenzhen University 2022,2023

The First Prize Scholarship, Xidian University 2018,2019,2020

RESEARCH EXPERIENCE

3D Structure-aware Reconstruction (Published) Jun 2021 - Dec 2021

First author, Visual Computing Center (VCC), SZU

- Propose an efficient and robust 3D simplified reconstruction algorithm, assembling planar primitives to generate concise polygonal meshes.
- ***Shanshan Pan**, Jiahui Lv, Hao Fang and Hui Huang. Efficient and robust 3D structure-aware reconstruction. Journal of Image and Graphics.*

LOD Representation for Urban Scenes (ISPRS, Under review) Jan 2022 - Present

First author, Visual Computing Center (VCC), SZU

- Propose a structure-aware analysis of planar primitives to identify the 3D architectural structures and construct a reasonable LOD-Tree to generate semantic-aware LOD models.

Architectural Co-LOD Generation (Published) Oct 2023 - May 2024

Second author, Visual Computing Center (VCC), SZU

- Introduce shape co-analysis to standardize geometric structures across multiple buildings, facilitating the progressive and consistent generation of LODs.
- *Runze Zhang, **Shanshan Pan**, Chenlei Lv, Minglun Gong and Hui Huang. Architectural Co-LOD Generation. ACM Transactions on Graphics (TOG), 2024, 43(6): 1-16.*

B-Reps Construction of 3D CAD Models (Published) Oct 2023 - Jan 2024

Third author, Visual Computing Center (VCC), SZU

- Propose a novel method for predicting a Voronoi Diagram that explicitly reveals both the number of primitives and their connections, along with a "fit" operation to derive a single primitive within each Voronoi Cell, enabling the construction of B-Reps for 3D CAD models.
- *Yilin Liu, Jiale Chen, **Shanshan Pan**, Daniel Cohen-Or, Hao Zhang and Hui Huang. Split-and-fit: Learning b-reps via structure-aware voronoi partitioning. ACM Transactions on Graphics (TOG), 2024, 43(4): 1-13.*

Structural Gaussian Splatting (On going) May 2024 - Present

Visual Computing Center (VCC), SZU

- The goal is to incorporate additional structural information into Gaussian primitives, enabling them to not only achieve high-quality rendering but also facilitate the direct extraction of structured 3D models.

MISCELLANEOUS

- **Skills:** C++, Python, Latex
- **Languages:** IELTS 6.5
- **Interests:** Drawing and Writing, Badminton and Tennis
- **Activities:** Organize a paper-sharing group among classmates