Jingwei Xu

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GitHub: https://github.com/DavidXu-JJ

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🎓 Education

ShanghaiTech University , Master of Computer Science   Sep. 2023 – Jun. 2026 expected
Advisor: Shenghua Gao

Shanghai University , Bachelor of Computer Science, rank top 10%   Sep. 2019 – Jun. 2023

👥 Publications

1. DebSDF: Delving into the Details and Bias of Neural Indoor Scene Reconstruction   Aug. 2023
Yuting Xiao*, **Jingwei Xu***, Zehao Yu, Shenghua Gao†   (TPAMI under revision review)
[project page] [arXiv] [code(coming soon)]
Keywords: Multi-view Reconstruction, Uncertainty Learning, Differential Geometry
2. Anonymous CVPR 2024 first author submission under review

👥 Projects

GPU optimized Poisson Reconstruction   Jun. 2022 – Aug. 2022
CUDA,C++   Personal Project
Specific tasks:

- Implement and understand the CPU version of Poisson Reconstruction. Successfully use the conjugate gradient solver to get the least squares solution for the Laplacian, and finally, extract the surface through Marching Cubes.
- Implement the parallel octree building on GPU and parallelly extract the surface with reference to pseudocode, which doesn't have open source implementation before. Fortyfold increase in efficiency is achieved.

Project repository and demo: https://github.com/DavidXu-JJ/PoissonRecon_GPU

Whole-brain single neuron reconstruction cloud collaboration platform   Nov. 2021 – Mar. 2022
C++,Qt   Advisor:Yimin Wang
Background: Develop a 3D morphological structure reconstruction platform for neurons in a metaverse environment, providing a key tool for building a single-cell brain connection map.
Contribution: 1) Optimal integration of automation modules; 2 Design and implement a validation scheme for the platform's reconstruction module; 3) Test the performance of the APP2 algorithm in neuron reconstruction.
Specific tasks:

- The data volume of the whole brain map is about 10^{13} voxels, and the APP2 algorithm is designed for 3D images with a data volume of 10^6 voxels. Use the APP2 algorithm to generate the reconstructed line segment in the small unit and compare it with the Ground Truth, delete poor results, and keep good results.
- Connect all generated small cells to form a whole-brain reconstruction map interleaved with Ground Truth.

Project repository and demo: https://github.com/DavidXu-JJ/v3d_automation

ℹ Honors and Awards

Silver Medal, Chinese Collegiate Programming Contest(CCPC) Guangzhou Station   Nov. 2021
Bronze Medal, International Collegiate Programming Contest(ICPC) Shenyang Station   Nov. 2021

⚙ IT Skills

- Programming Languages: C, C++, CUDA, Python, PyTorch
- Development Tools: Git, SSH, Docker, Singularity, CMake, Vim
- Platform: Linux = macOS > Windows, familiar with Linux/Unix