

JINGWEI XU

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

🎓 EDUCATION

Shanghai University, Shanghai, China

Sep. 2019 – Jun. 2023

Bachelor of Computer Science GPA: 3.76/4.00(rank :16/163)

Language: CET-4:626 CET-6:553

Honors: Special Scholarship, School-level outstanding student

Relevant curriculum: OOP(93), DS(95), Discrete mathematics(95), OS(93)

No.2 High School Of East China Normal University, Shanghai

Sep. 2016 – Jun. 2019

👤 EXPERIENCE

whole-brain single neuron reconstruction cloud collaboration platform

Nov. 2021 – Mar. 2022

C++,Qt

Tutor: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} pixels, and the APP2 algorithm is designed for 3D images with a data volume of 10^6 pixels. 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

3D-WaveUNet reproduction

Nov. 2021 – Apr. 2022

Python

Specific tasks:

- Learn computer vision and DWT independently to understand required knowledge .
- By reproducing classic models such as ResNet and PointNet, practice common deep learning frameworks.
- Train the model in the paper dataset, use DWT as a downsampling layer to improve model performance.

Project repository and demo: https://github.com/DavidXu-JJ/3D_WaveUNet_pytorch_replication

GPU optimized Poisson Reconstruction

Jun. 2022 – Aug. 2022

CUDA,C++

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 pseudo-code, which doesn't have open source implementation before. Forty-fold increase in efficiency is achieved.

Project repository and demo:

- https://github.com/DavidXu-JJ/PoissonRecon_CPU
- https://github.com/DavidXu-JJ/PoissonRecon_GPU

👤 COMPETITION

SHU ACM team member, the leader of the team "White Hole"

2020 – 2021

- Familiar with Dynamic Programming, responsible for Number Theory, Computational Geometry.
- Responsible for constructing greedy schemes, code debugging, constructing data, etc.
- Participate in online competitions from time to time, such as getting 203/11941 Google kick start in 2022. <https://codingcompetitions.withgoogle.com/kickstart/round/000000000008cb33e>

i HONORS AND AWARDS

<i>Silver Medal</i> , Chinese Collegiate Programming Contest Guangzhou Station	Nov. 2021
<i>Bronze Medal</i> , International Collegiate Programming Contest Shenyang Station	Nov. 2021
<i>First Prize</i> , National Collegiate Digital Media Contest	Nov. 2021
<i>First Prize</i> , National "Lan Qiao Cup" C++ Programming Contest(Shanghai Province)	May 2021

⚙ IT SKILLS

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