# Guoqing Zhang

Shenzhen, China 1996.10.01 wlsdzyzl@163.com 13027977524 blog:wlsdzyzl.github.io
Guoqing Zhang wlsdzyzl

I am interested in deep learning, computer graphics, 3D vision, and robotics, enjoy building a virtual world in computer and exploring the application in real world. I am willing to do some work related to medical imaging, SLAM, 3D reconstruction and understanding, and topology analysis.

## Education

**Xidian University** *B.S. in Computer Science and Technology* *2014.09 - 2018.06*

- Advisor: Nan Luo
- Thesis: A WebGL-based Online Framework for 3D model visualization, registration, and reconstruction.

**Tsinghua University** *M.S. in Data Science and Information Technology, Tsinghua-Berkeley Shenzhen Institute* *2018.09 - 2021.06*

- Advisor: Lu Fang
- Thesis: Building-scale Unstructured 3D Reconstruction and Understanding

**Tsinghua University** *Ph.D. in Data Science and Information Technology, Tsinghua Shenzhen International Graduate School* *2021.09 - Present*

- Advisor: Yang Li
- Thesis: Structure-Aware Deep Learning for Medical Images and Shapes

## Publications

**High-Fidelity Medical Shape Generation via Skeletal Latent Diffusion**

***Guoqing Zhang***, Jingyun Yang, Siqi Chen, Anping Zhang, Yang Li; Submitted to IEEE Transactions on Medical Imaging, under the 1st round review.

**Hierarchical Feature Learning for Medical Point Clouds via State Space Model**

***Guoqing Zhang***, Jingyun Yang, Jingyun Yang, Yang Li; MICCAI 2025 (early accept).

**Flemme: A Flexible and Modular Learning Platform for Medical Images**

***Guoqing Zhang***, Jingyun Yang, Yang Li; BIBM 2024.

**A Geometric Algorithm for Blood Vessel Reconstruction from Skeletal Representation**

***Guoqing Zhang***, Yang Li; ISBRA 2024.

**Topology-Preserving Hard Pixel Mining for Tubular Structure Segmentation**

***Guoqing Zhang***, Caixia Dong, Yang Li; BMVC 2023.

**BuildingFusion: Semantic-aware Structural Building-Scale 3D Reconstruction**

Tian Zheng*, ***Guoqing Zhang****, Lei Han*, Lan Xu, Lu Fang; IEEE TPAMI 2021.

**Graph-guided Source Selection with Sequential Transfer for Medical Image Segmentation**

Jingyun Yang, ***Guoqing Zhang***, Jingge Wang, Yang Li; BIBM 2024.

**Adapting Foundation Models for Few-Shot Medical Image Segmentation: Actively and Sequentially**

Jingyun Yang, ***Guoqing Zhang***, Jingge Wang, Yang Li; ISBI 2025.

**Hierarchical Part-based Generative Model for Realistic 3D Blood Vessel**

Siqi Chen, ***Guoqing Zhang***, Jiahao Lai, Bingzhi Shen, Sihong Zhang, Caixia Dong, Xuejin Chen, Yang Li; MICCAI 2025.

**Transfer Risk Map: Mitigating Pixel-level Negative Transfer in Medical Segmentation**

Shutong Duan, Jingyun Yang, Yang Tan, ***Guoqing Zhang***, Yang Li, Xiao-Ping Zhang; ICASSP 2025.

**How Group Collaboration Evolves and Drives Impact in Crisis Response?**

Anping Zhang, Dexu Kong, Jiahao Lai, ***Guoqing Zhang***, Yue Wang, Yang Li, Marta C. González; Communications Physics 2026.

## Open-Source Projects

**OnePiece: RGBD-based 3D Vision Library** *Code* *Documentation*

- Implementation of fundamental RGB-D SLAM and reconstruction algorithms.
- Interactive visualization of online reconstruction.

**Dragon: A Library about Digital Geometry Processing** *Code*

- Implementation of a series of 2D & 3D geometry processing algorithms, including 2D Voronoi diagram, point cloud reconstruction, and mesh processing.
- Interactive visualization of different geometric structures.

**Rabbit: Lidar SLAM reconstruction system** *Code*

- Implementation of LOAM, ICP, GICP, and other visual odometry methods.
- Implementation of Subgraph and Moving box-based optimization, including ground normal vector alignment constraints, and closed-loop detection.

**Flemme: A General Deep Learning Framework for Medical Images** *Code* *Documentation*

- The separation of encoder and model architecture allows a flexible combination to construct different models.
- The creation of models can be fully realized using configuration, without the need to write actual code.
- Supports 2D/3D image and point cloud learning (reconstruction, segmentation, and generation) based on convolution, transformer, and state-space model.

**Meshage: Medical Shape Generation via Skeletal Latent Diffusion** *Code*

- Implementation of differentiable skeletonization for point cloud.
- Implementation of SK-SDF and SP-SDF shape autoencoder.
- High-fidelity medical shape generation via EDM-based skeletal latent diffusion.

## Other Experiences

**SLAM Algorithm Engineer Intern** *2021.4-2021.8*
*Unity Drive*

- Lidar SLAM engineering, enable LIO-LOAM on 6-axis IMU.

**Teaching Assistant for Data Learning course** *2022.9-2023.1*

- Design and grade programming assignments.

**High-performance server cluster administrator** *2021.9-2025.3*

- GPU (A800) server cluster setup and daily maintenance with slurm.

## Technologies

**Coding**: C&C++, Python, Java, OpenGL, ROS, Matlab, Pytorch, HTML/CSS/JS.

**Software:** Linux (Ubuntu, CentOS), Slurm

**Language:** Chinese, English (IELTS: 7.0)