Zhouyuan Chen

Email: zc2952@nyu.edu **Personal Website**: https://zhouyuan-chen.github.io **GitHub**: https://github.com/Zhouyuan-Chen

EDUCATION

New York University Sep. 2023 – Current
Master of Science in Computer Science *New York, United States*

Zhejiang University of Technology Sep. 2019 – Jun. 2023
Bachelor of Engineering in Software Engineering *Hangzhou, China*

PUBLICATIONS

Topological Offsets [website] 2024
*Daniel Zint, **Zhouyuan Chen**, Yifei Zhu, Teseo Schneider, Denis Zorin, Daniele Panozzo* *preprint on Arxiv*

RESEARCH PROJECTS

Shell Simulation Jun. 2024 – Current
Research Assistant, Advised by Daniele Panozzo and Teseo Schneider *New York, United States*

- Simulating shell based on prisms will save a lot computation efforts and also preserve the accuracy. Meanwhile, building a pure prism shell mesh from an arbitrary surface is a hard problem. Therefore we will present a method to generate a mesh with as many as possible prisms and then try to build a FEM system from it to do simulation.

Automatic Simulator For Annotation Images Jun. 2024 – Current
Research Assistant, Advised by Daniele Panozzo and Daniel Zint *New York, United States*

- Designed and implemented a medical simulation pipeline to make it possible for medical staff to easily simulate the patients' bodies with their CT images.
- **Publication/Software: 3D Slicer Extension: Image Annotation Mesher**

Embedded Remeshing Jun. 2023 – May 2024
Research Assistant, Advised by Daniele Panozzo and Daniel Zint *New York, United States*

- Implemented the Embedded Remeshing algorithm in 2D and 3D, and modified the algorithm's idea. Participated into developing the open source software wildmeshing-toolkit.
- **Publication: Topological Offsets**

Teeth Collision Computation and Model Generation Aug. 2021 – June 2022
Research Assistant, Advised by Jiazhou Chen *Hangzhou, China*

- **Teeth Model Collision Visualization and Acceleration [demo 1]:** Implemented the existing broad phase collision detection algorithms(SaP, BVH, Kd-Tree) to accelerate the collision computation, to make the software faster(from **3 minutes** to less than **200ms** per computation). Designed and implemented an algorithm to visualize the minimum embedding distance between two teeth.
- **Teeth Undercut Model Generation [demo 2]:** Designed and implemented an algorithm to reconstruct the undercut model of human teeth, which can automatically generate the mesh to help dentists avoid manually making the undercut model.
- **Software/Library: Hansfive Virtual Teeth / Collision Calculation Library (ColCal)**

SOFTWARE AND CODE

3D Slicer Extension: Image Annotation Mesher [code and manual will be released soon]
Open-source Medical Software

Hansfive Virtual Teeth [code is not available due to the policy]
Company Medical Software

Collision Calculation Library (ColCal) [code]
Company Medical Software

TEACHING EXPERIENCE

Geometric Modeling(CSCI-GA.3033-018) Spring 2024
Teaching Assistant at the New York University *New York, United States*

Intro to Computer Science(CSCI-UA 101-10) Spring 2024
Grader at the New York University *New York, United States*

SKILLS AND INTERESTS

Programming Languages: C/C++, Python, Java, SQL
Libraries and Tools : Eigen, Libigl, CMake
Languages: English (fluent), Chinese (native)
Research Interests: Computer Graphics, Geometry Processing, Numerical Simulation