# HAN ZHANG

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## EDUCATION

**The Chinese University of Hong Kong, Hong Kong** *July 2020*
Department of Mathematics M.Phil in Applied Mathematics

**Sun Yat-Sen University, Guangzhou** *June 2018*
School of Mathematics B.Sc in Computational Science

## RESEARCH INTEREST

Computer Graphics Geometry Processing Medical Image

## ACADEMIC EXPERIENCE

**The Key Laboratory of Computational Science of Guangdong Province** *September 2016 - April 2018*
*Part-Time Research Assistant* *Guangzhou, CHINA*

· Research on medical images supervised by Prof.Ying JIANG. Especially on finding a new approach for CT reconstruction through wavelet basis.

**Faculty of Mathematics, The Chinese University of Hong Kong** *August 2018 - July 2020*
*Teaching Assistant* *Hong Kong, CHINA*

· Research on computational geometry and deep learning. Supervised by Lok Ming LUI

**Department of Computer Science, Shenzhen University** *July 2020 - June 2021*
*Research Assistant* *Shenzhen, CHINA*

· Research on scene reconstruction and path planning. Work with Hui Huang

**Faculty of Mathematics, The Chinese University of Hong Kong** *July 2021 - Present*
*Research Assistant* *Hong Kong, CHINA*

· Research on computational geometry and medical image analysis. Supervised by Lok Ming LUI

## PROJECTS

**Quasi-Conformal and Neural Network** *October 2019 - Present*
*with* Lok Ming LUI The Chinese University of Hong Kong
Quasi-Conformal theory is a powerful tool to control the geometric deformation. Thus can control the degree of the deformation and preserve the topology of a spatial transformation in images. The project aim to introduce Quasi-Conformal into the neural network models to enable the convolution and the feature map deformable without destroying the topology of the original images.

**Continuous Path Planning for Reconstruction** *July 2020 - June 2021*
*with* Hui HUANG Shenzhen University
We introduce the first path-oriented drone trajectory planning algorithm, which performs continuous (i.e., dense) image acquisition along an aerial path and explicitly factors path quality into an optimization along with scene reconstruction quality.

## PUBLICATIONS

1. Nondeterministic Deformation analysis using Quasiconformal Geometry.
**Han Zhang**, Lok Ming Lui
(submitted).
2. Topology-Preserving Segmentation Network: A Deep Learning Segmentation Framework for Connected Component.
**Han Zhang**, Lok Ming Lui
(submitted).
3. Quasi-Conformal Transformer Network.
**Han Zhang**, Qiguang Chen, Yuchen Guo, Lok Ming Lui
(manuscript).
4. Continuous Aerial Path Planning for 3D Urban Scene Reconstruction.
**Han Zhang**, Yucong Yao, Ke Xie, Chi-Wing Fu, Hao Zhang, Hui Huang.
(*Siggraph Asia 2021*).
5. Quasi-Conformal Neural Network (QC-net) with Applications to Shape Matching.
**Han Zhang**
(*MPhil thesis*)

## ACADEMIC ACHIEVEMENTS

**Research Postgraduate Scholarship**
**Excellent Student Scholarship of Sun Yat-Sen University** *First Class*
**Excellent Thesis of Sun Yat-Sen University** *Outstanding*
**China Undergraduate Mathematical Contest in Modeling** *Second Prize*
**National High School Mathematics League** *Second Prize*

## TEACHING

Calculus for Engineering(MATH1510) 2018-2019 FALL, at CUHK
Game Theory(MATH4250) 2018-2019 SPRING, at CUHK
Foundation of Modern Mathematics(MATH1050) 2019-2020 FALL, at CUHK

## TECHNICAL STRENGTHS

**Programming Languages** C++, MATLAB, PYTHON, CGAL...