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 to ICIP).

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
   (submitted to SIAM Imaging Science).

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++, PYTHON, MATLAB, CGAL...