

HAN ZHANG

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[han10th.github.io](https://github.com/han10th)

EDUCATION

City University of Hong Kong, Hong Kong

Department of Mathematics

Ongoing

Ph.D. in Mathematics

Chinese University of Hong Kong, Hong Kong

Department of Mathematics

July 2020

M.Phil. in Applied Mathematics

Sun Yat-Sen University, Guangzhou

School of Mathematics

June 2018

B.Sc. in Computational Science

RESEARCH INTEREST

Computational Fluid Mechanics: Fluid-Structure Interaction, Blood flow simulation

Computational Differential Geometry: Geometric Deep Learning, Deformable Model

Scientific Machine Learning: PINN method, Neural Networks

Image Science: Image Segmentation, Interactive Segmentation

JOURNAL PUBLICATIONS

1. Fluid Dynamics and Domain Reconstruction from Noisy Flow Images Using Physics-Informed Neural Networks and Quasi-Conformal Mapping.
Han Zhang^T, Xue-Cheng Tai, Jean-Michel Morel, Raymond H. Chan
Submitted to *SIAM Journal of Imaging Science (SIIS)*.
[AI4PDE project]
2. Circular Image Deturbulence using Quasi-conformal Geometry.
Chu Chen, **Han Zhang**, Lok Ming Lui^T
Submitted to *Neural Network (NN)*
[Geometric Image project]
3. Quasi-Conformal Convolution: A General Geometric Convolution Neural Network on Manifold Learning.
Han Zhang, Tsz Lok Ip, Lok Ming Lui^T
Submitted to *SIAM Journal of Imaging Science (SIIS)*.
[Geometric Image project]
4. Parametrized Sampling for 3D Blood Simulation in Deformable Vessels Using Physics-Informed Neural Networks.
Han Zhang, Lingfeng Li, Xue-Cheng Tai^T, Raymond H. Chan
Submitted to *Journal of Computational and Applied Mathematics (JCAM)*.
[AI4PDE project]
5. Deformation-Invariant Neural Network and Its Applications on Image Classification and Restoration.
Han Zhang, Qiguang Chen, Lok Ming Lui^T
Accepted by *Neural Network (NEU NET)*, 2025.
[Geometric Image project]
6. Full 3D Blood Flow Simulation in Curved Deformable Vessels Using Conditional Physics-Informed Neural Networks.

Han Zhang, Xue-Cheng Tai^T

Accepted by *Acta Mathematica Universitatis Comenianae (AMUC)*, 2024.

[AI4PDE project]

7. QIS : Interactive Segmentation via Quasi-Conformal Mappings.

Han Zhang, Daoping Zhang, Lok Ming Lui^T

Accepted by *SIAM Journal of Imaging Science (SIIS)*, 2024.

[Geometric Image project]

8. A Meshless Solver for Blood Flow Simulations in Elastic Vessels Using Physics-Informed Neural Network.

Han Zhang, Raymond H. Chan, Xue-Cheng Tai^T

Accepted by *SIAM Journal of Scientific Computing (SISC)*, 2024.

[AI4PDE project]

9. A Learning-based Framework for Topology-Preserving Segmentation using Quasiconformal Mappings.

Han Zhang, Lok Ming Lui^T

Accepted by *Neurocomputing (NEUCOMP)*, 2024.

[Geometric Image project]

10. Continuous Aerial Path Planning for 3D Urban Scene Reconstruction.

Han Zhang, Yucong Yao, Ke Xie, Chi-Wing Fu, Hao Zhang, Hui Huang^T.

Accepted by *ACM Transaction on Computer Graphics (ACM TOG, SIGGRAPH ASIA)*, 2021.

[Graphics]

PROCEEDING PUBLICATIONS

1. Accelerating Physics-Informed Learning Through Parameter Prediction Using HyperDiffusion.

Yuzhou Zhao, **Han Zhang**, J. Matias Di Martino, Jean-Michel Morel, Guillermo Sapiro

In progress

[AI4PDE project]

2. Nondeterministic Deformation analysis using Quasiconformal Geometry.

Han Zhang, Lok Ming Lui^T

Accepted by *IEEE International Conference on Image Processing (ICIP)*, 2022.

[Geometric Image project]

ACADEMIC ACHIEVEMENTS

Outstanding Academic Performance Award, 2024

Excellent Student Scholarship of Sun Yat-Sen University, 2017

First Class

Excellent Thesis of Sun Yat-Sen University, 2018

Outstanding

China Undergraduate Mathematical Contest in Modeling, 2016

Second Prize

National High School Mathematics League, 2012

Second Prize

REVIEW

Computer Graphics Forum (EuroGraphics)

Neural Networks