

- Solid research experience in computer graphics with focus on 3D geometry processing and computer vision with focus on multi-view reconstruction.
- Industry experience in developing and applying deep learning methods in image processing and computational photography.
- Seeking employment in computer graphics and computer vision

EDUCATION

Hong Kong University of Science and Technology (HKUST), Hong Kong

Ph.D. in Electronic and Computer Engineering

Aug 2013 – Jun 2019

- Advisor: Pedro V. Sander

Tongji University, Shanghai, China

B.E. in Electrical and Electronics Engineering

Aug 2009 – Jul 2013

RELATED EXPERIENCE

UCSD, San Diego, CA

Visiting Graduate Student Host: Prof. Hao Su

Dec 2018 – Jun 2019

Point-based Multi-view Stereo Network

- Proposed a novel point-based deep learning framework for multi-view stereo and outperforms state-of-art methods in terms of quality, memory efficiency and flexibility.
- A network that support adaptive refinement, which allow user to densify reconstruction only at region of interest.

SenseTime, Hong Kong (a leading AI company in China)

Research Intern

Jun 2017 – Dec 2017

- **Relighting:** Developed a real-time CNN-based algorithm to add portrait lighting effects to photos, including studio, contour, and arbitrary lighting effect. The result is natural looking and temporally coherent for video input.
- **Deep Image Color Enhance:** Trained neural networks to replace image processing pipelines like HDR and a set of Lightroom presets.

HKUST, Hong Kong

Coarse Mesh Stereo Reverse Reprojection for Efficient Rendering

May 2018 – Dec 2018

- Proposed a framework to render low-resolution model with compelling high-resolution appearance for stereo rendering.
- Achieved ~3x faster rendering speed compared with benchmark method.

Efficient Triangle Reordering of Translucent Model

Aug 2016 – May 2017

- Proposed an efficient algorithm that recovers nearly accurate back-to-front order for arbitrary viewpoints in real-time for large static translucent models.
- Achieved ~2x faster rendering speed compared to the benchmark method.
- Achieved 4x–7x faster preprocessing while maintaining perceptual rendering quality.

Triangle Reordering in Animation Scenes

Nov 2014 – Dec 2015

- Proposed an effective algorithm that renders opaque models with statistically low overdraw orders, which are precomputed offline, in animation scenes.
- First triangle ordering work designed for animation, which outperformed the state of the art for static models.

PUBLICATIONS

- Songfang Han**, Pedro V. Sander. *Efficient temporal and stereo reprojection using simplified meshes*. Working paper.
- Songfang Han***, Rui Chen*, Jing Xu, Hao Su. *Point-based multi-view stereo network*. IEEE International Conference on Computer Vision 2019. (Oral) (* equal contribution)
- Songfang Han**, Ge Chen, Pedro V. Sander, Diego Nehab. *In-depth buffers*. Journal of Proceedings of the ACM on Computer Graphics and Interactive Techniques, Vol. 1, No. 1, Article 2, 2018.
- Songfang Han**, Pedro V. Sander. *Triangle reordering for efficient rendering in complex scenes*. Journal of Computer Graphics Techniques (JCGT), Vol. 6, No. 3, 38–51, 2017.
- Songfang Han**, Pedro V. Sander. *Triangle reordering for reduced overdraw in animated scenes*. SIGGRAPH Symposium on Interactive 3D Graphics and Games 2016.

AWARDS AND HONORS

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| Graduate Research Scholarship, <i>HKUST</i> | 2013 – 2019 |
| Meritorious Winner of Mathematical Contest in Modeling, <i>COMAP</i> | 2012 |
| National Scholarship, <i>Tongji University</i> | 2011 |
| First-class Scholarship, <i>Tongji University</i> | 2009 – 2012 |

GRADUATE COURSEWORK

Computer Vision, Combinatorial Optimization, Convex Optimization, Stochastic Processes, Digital Image Processing, Video Signal Processing, Design Thinking Summer Course

COMPUTER SKILLS

Programming: Python, C++, MATLAB, JavaScript
Graphics: OpenGL, OpenCV, WebGL, Maya, Blender

Deep Learning: Tensorflow, Pytorch, Caffe
OS: Linux, Windows, macOS