

Shilin Zhu | Curriculum Vitae

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Self motivated Ph.D. student with a clear career path on computer graphics, especially neural rendering. Dedicated myself to animation and film entertainment. Also have background of 3D computer vision and 3D deep learning.

Research interest

- 3D and Physically-Based Rendering
- Neural Rendering with Machine Learning
- 3D Capture and Sensing

Education

- **Ph.D. Student, Google PhD Fellow** **San Diego, CA**
Computer Science and Engineering, University of California San Diego, USA 2016 - now
Research Area: 3D vision and graphics
Project Supervisors: Hao Su, Ravi Ramamoorthi
- **Visiting Scholar** **Berkeley, CA**
Computer Science, University of California-Berkeley, USA 2015 - 2016
- **Bachelor of Science** **Hefei, CHN**
Electrical Engineering (in Honor), University of Science and Technology of China 2012-2016
(Top 5% Distinguished Thesis)
Research Area: optimization, and capture

Industry employment

- **Disney Research** **Glendale, CA**
Research Associate Intern Summer 2019
- **Apple VR and Display** **Apple Park, Cupertino, CA**
Research Intern Summer 2018
- **Google** **Mountain View, CA**
Fellowship Researcher 2018-Present

Technical and personal skills

- **Programming Languages:**
Python, Numpy, C/C++, MATLAB
- **Industry Software Skills:**
Algorithms, Deep Learning Framework (PyTorch, TensorFlow, MatConvNet, CoreML)
OpenCV, Renderer (NVIDIA Optix, Mitsuba, OpenGL, Blender, PBRT, my own C++/CUDA path tracer), CUDA
- **Research:** Good research skills, can write well organized and structured papers.

Awards

Google PhD Fellowship, Google, 2018-2020

Research Highlights, Communications of ACM, ACM, 2019

ACM SIGMOBILE Research Highlights, ACM SIGMOBILE, 2018

Championship, National Innovation Competition, Chinese Ministry of Education, 2016

Distinguished Bachelor Thesis, University of Science and Technology of China, 2016

Scholarship for Outstanding Students (Silver Award), University of Science and Technology of China, 2013

Selected publications (published and in submission)

Computer vision, computer graphics, and machine learning:

On-going (2019-2020, details omitted and title modified for confidentiality):

[C0] **Global Illumination for Dynamic Scene Rendering**

Disney work, under preparation to *i3D'20*

[C1] **Photon Mapping for Real-Time Rendering**

under preparation to *SIGGRAPH'20*

[C2] **Deep Path Guiding Based on Local Photon Maps**

under preparation to *SIGGRAPH'20*

[C3] **Deep Stereo using Adaptive 3D Volumes**

submitted to *CVPR'20*

[C4] **PartNet: A Large-scale Benchmark for Fine-grained and Hierarchical Part-level 3D Object Understanding**

Kaichun Mo, Shilin Zhu, Angel Chang, Li Yi, Subarna Tripathi, Leonidas Guibas, and Hao Su
CVPR'19

[C5] **Binary Ensemble Neural Network: More Bits per Network or More Networks per Bit?**

Shilin Zhu, Xin Dong and Hao Su

CVPR'19

[C6] **Towards Fast, Accurate and Robust Binary Neural Network on FPGAs**

Shilin Zhu, Cheng Fu, Hao Su and Jishen Zhao

FPGA'19

[C7] **SimBNN: A Similarity-Aware Binarized Neural Network Acceleration Framework**

Cheng Fu, Shilin Zhu, Huili Chen, Farinaz Koushanfar, Hao Su, Jishen Zhao

FCCM'19

Capture, lighting, and camera:

On-going (2019-2020, details omitted and title modified for confidentiality):

[C8] **Real-Time Robust 3D Human Capture and Tracking**

Disney work, submitted to *CVPR'20*

[C9] **Human Gait Recognition with 3D Point Clouds**

Zhen Meng, Shilin Zhu and Anfu Zhou

AAAI'20

[C10] **Invisible QR Code Hijacking using Smart LED**

Guangyuan Su, Shilin Zhu and Anfu Zhou

UbiComp'19

[C11] **Automating Visual Privacy Protection Using a Smart LED**

Shilin Zhu, Chi Zhang and Xinyu Zhang

(being commercialized by stage show companies)

Research Highlights, Communications of ACM

ACM SIGMOBILE Research Highlights

ACM MobiCom'17

Selected news and media coverage

- o **IEEE Spectrum, Intel AI Blog, The Robot Report, Robotics Business Review, TechCrunch, etc.**

2019 Researchers launch 26K+ object dataset to help robots learn shapes

- o **IEEE Spectrum, BBC News, ACM News, Yahoo! News, Co.Design, Digital Trends, Solid State Lighting Design, Jackphan, Smart City News, Sohu, InfoHighTech, GeekTimes, etc.**

2017 Researchers create method using fast flickering LEDs to impede digital image capture

Reference

Hao Su, CSE, UC San Diego

Ravi Ramamoorthi, CSE, UC San Diego

Matt Fisher, Adobe Research

Kenneth Mitchell, Disney Research

Jack Yang, Disney Research