

ABOUT ME

I am currently a **Senior Graphics Researcher** at **Tencent America** in New York. My background is mainly focused on **Computer Graphics**, specially in **Physics-based Rendering** and **Inverse-rendering**. I am also interested in **Material Capture** by using **Generative AI Models** or **Procedural Models**. How to decompose **light/shadow** and material properties from a 3D model (Mesh/NeRF/**3DGS**) and make it **relightable** are what I am willing to solve. Besides, I am interested in any project related to **Meta Human**.

EDUCATION

University of California, Irvine

Irvine, CA, US

Ph.D in Computer Science

Sept. 2016 – Aug. 2021

Dissertation: Multi-scale Appearance Modeling of Complex Materials.**Advisor:** [Shuang Zhao](#)**University of Chinese Academy of Sciences**

Beijing & Shenzhen, China

M.S. in Computer Science

Sept. 2010 – Jul. 2013

Thesis: GPU-based Soft Body Deformation with Nonlinear Finite Element Method.**Advisor:** [Pheng Ann Heng](#) (CUHK)**Central South University**

Changsha, China

B.S. in Mathematics and Applied Mathematics

Sept. 2006 – Jul. 2010

Thesis: Forces Distribution with Fractal Theory in High Velocity Compaction Technology.WORKING
EXPERIENCES**Tencent America**

New York, NY, US

Senior Researcher at Pixel Lab

Jan. 2023 – present

Working on AIGC related projects: GenAI, 3D Gaussian splatting, segmentation, image-based relighting. **Manager:** [Changxi Zheng](#)**Tencent America**

Playa Vista, CA, US

Senior Researcher at Graphics and Vision Team

Sept. 2021 – Dec. 2022

Working on Volumetric rendering in UE; Texture map delighting, shadow and highlight removal.**Manager:** [Bo Yang](#)**Facebook Reality Lab**

Sausalito, CA, US

Research Intern at Monaco Team

July. 2020 – Sept. 2020

Working on Eye caustics rendering and its inverse problem.**Advisor:** [Christophe Hery](#), [Olivier Maury](#)**Adobe Research**

San Jose, CA, US

Research Intern at Emerging Graphics Group

July. 2019 – Sept. 2019

Working on Material capture and estimation.**Advisor:** [Miloš Hašan](#), [Kalyan Sunkavalli](#)**Megvii (Face++) Research USA**

Redmond, WA, US

Research Intern

July. 2018 – Sept. 2018

Working on Human face shadow/highlight removal and face relighting.**Advisor:** [Jue Wang](#)**Autodesk**

San Francisco, CA, US

Research Intern at Core Rendering team

July. 2017 – Sept. 2017

Working on efficient volumetric rendering of 3D-printing materials.**Advisor:** [Miloš Hašan](#)

Nanyang Technological University

Research Associate at BeingThere Centre (BTC), IMI

Singapore

Oct. 2013 – Mar. 2016

(BTC is a US\$18 million international research project on 3D Telepresence and Virtual Reality between ETH (Markus Gross), UNC (Henry Fuchs) and NTU (Nadia Magnenat Thalmann).)

Working on stereo rendering; physical-based video manipulation; virtual try-on system for prescription glasses.

Collaborators: Miriam Reiner, Jean-Charles Bazin, Tobias Martin, Claudia Plüss, Pierre-Yves Laffont, Qian Zhang

Advisor: Tat-Jen Cham

Shenzhen Institutes of Advanced Technology

Research Assistant at HCI lab

Shenzhen, China

Sept. 2011 – Jul. 2013

Working on mesh processing; soft body simulation; virtual surgery; CUDA acceleration.

Advisor: Pheng-Ann Heng, Yongming Xie

PUBLICATIONS

“Woven Fabric Capture from a Single Photo” by Wenhua Jin, Beibei Wang, Milos Hasan, **Yu Guo**, Steve Marschner and Lingqi Yan. *SIGGRAPH Asia '22*

“Beyond Mie Theory: Systematic Computation of Bulk Scattering Parameters based on Microphysical Wave Optics” by **Yu Guo**, Adrian Jarabo and Shuang Zhao. *ACM Transactions on Graphics (TOG)*, 2021 (presented at *SIGGRAPH Asia '21*).

“MaterialGAN: Reflectance Capture using a Generative SVBRDF Model” by **Yu Guo**, Cameron Smith, Miloš Hašan, Kalyan Sunkavalli and Shuang Zhao. *ACM Transactions on Graphics (TOG)*, 2020 (presented at *SIGGRAPH Asia '20*).

“A Bayesian Inference Framework for Procedural Material Parameter Estimation” by **Yu Guo**, Miloš Hašan, Lingqi Yan and Shuang Zhao. *Computer Graphics Forum (CGF)*, 2020 (presented at *Pacific Graphics '20*).

“Position-Free Monte Carlo Simulation for Arbitrary Layered BSDFs” by **Yu Guo**, Miloš Hašan and Shuang Zhao. *ACM Transactions on Graphics (TOG)*, 2018 (presented at *SIGGRAPH Asia '18*).

“A Virtual Try-on System for Prescription Eyeglasses” by Qian Zhang, **Yu Guo**, Pierre-Yves Laffont, Tobias Martin, and Markus Gross. *IEEE Computer Graphics and Applications (CG&A)*, 2017.

“3D Faces are Recognized More Accurately and Faster than 2D Faces, but with Similar Inversion Effects” by Derric Eng, Belle Yick, **Yu Guo**, Hong Xu, Miriam Reiner, Tat-Jen Cham, and Annabel Chen. *Vision Research*, 2017.

“Physically Based Video Editing” by Jean-Charles Bazin, Claudia Plüss (Kuster), **Yu Guo**, Tobias Martin, Alec Jacobson, and Markus Gross. *Computer Graphics Forum (CGF)*, 2016 (presented at *Pacific Graphics '16*).

“GPU Accelerated CBCT Reconstruction from Few Views with SART and TV Regularization” by Ping Liu, Lin Shi, Defeng Wang, **Yu Guo**, Jianying Li, Jing Qin, and Pheng-Ann Heng. *International Workshop on High Performance Computing for Biomedical Image Analysis (HPC-MICCAI)*, 2013.

“Real-time Hand Detection Based on Multi-stage HOG-SVM Classifier” by Jiang Guo, Jun Cheng, Jianxin Pang, and **Yu Guo**. *International Conference on Image Processing (ICIP)*, 2013.

“A GPU-Accelerated Finite Element Solver for Simulation of Soft-Body Deformation” by

Yu Guo, Jianying Li, Ping Liu, Qiong Wang, and Jing Qin. *International Conference on Information and Automation (ICIA)*, 2013.

“**A Survey on Simulation of Soft Tissue Deformation in Virtual Surgery**(In Chinese)” by **Yu Guo**, Jing Qin. *Journal of Integration Technology (JIT)*, 2013.

“**Fall over or Sliding down?**” by **Yu Guo**. *SIGGRAPH Asia (Poster)*, 2012.

“**A Master-Slave Robotic Simulator Based on GPUDirect**” by Jianying Li, **Yu Guo**, Heye Zhang, Yongming Xie. *International Conference on Intelligent Robots and Systems (IROS)*, 2012.

REVIEWS

TOG, CGF, SIGGRAPH, SIGGRAPH Asia, EG, PG