

Qi Sun

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EDUCATION

Doctor of Philosophy

2013/08 - 2018/05

Computer Science, Stony Brook University, *Stony Brook, NY*

Advisor: Distinguished Professor Arie Kaufman

Dissertation: Computational Methods for Immersive Perception

🏆 **IEEE VR 2019 Best Dissertation Award**

Bachelor of Science

2013/08

Mathematics, Taishan Honors College, Shandong University, China

2010/10 - 2013/08

Computer Science, Shandong University, China

2009/09 - 2010/10

EMPLOYMENT

Research Scientist

2018/06 - Now

Adobe Research, *San Jose, CA*

Research Intern

2017/07 - 2017/09

Adobe Research, Procedural Imaging Group, *San Jose, CA*

With by Paul Asente, Cynthia Lu and Li-Yi Wei

Research Intern

2017/04 - 2017/07

NVIDIA Research, New Experiences Group, *Redmond, WA*

With Anjul Patney, Morgan McGuire, Omer Shapira, Aaron Lefohn and David Luebke

Research Intern

2016/06 - 2016/08

NVIDIA Research, New Experiences Group, *Santa Clara, CA*

With Fu-Chung Huang, Joohwan Kim and David Luebke

Research Intern

2012/11 - 2013/02

Microsoft Research Asia, Hardware Computing Group, *Beijing, China*

RESEARCH INTERESTS

My research bridges computer graphics, human-computer interaction, VR/AR, and human visual optics. Beyond academic publications, my research has also been demonstrated to hundreds of users, attracted major media (e.g., BBC) reports, won an IEEE VR best dissertation award, and transferred to commercial systems reaching 40,000+ customers.

PUBLICATIONS

SIGGRAPH & ToG:

4 Reducing Simulator Sickness with Perceptual Camera Control

Ping Hu, **Qi Sun**, Piotr Didyk, Li-Yi Wei, Arie Kaufman

ACM Transactions on Graphics (SIGGRAPH Asia 2019)

- 3 **Towards Virtual Reality Infinite Walking: Dynamic Saccadic Redirection**
Qi Sun, Anjul Patney, Li-Yi Wei, Omer Shapira, Jingwan Lu, Paul Asente, Suwen Zhu, Morgan McGuire, David Luebke, Arie Kaufman
 ACM Transactions on Graphics (SIGGRAPH 2018)
- 2 **Perceptually-Guided Foveation for Light Field Displays**
Qi Sun, Fu-Chung Huang, Joohwan Kim, Li-Yi Wei, David Luebke, Arie Kaufman
 ACM Transactions on Graphics (SIGGRAPH Asia 2017)
- 1 **Mapping Virtual and Physical Reality**
Qi Sun, Li-Yi Wei, Arie Kaufman
 ACM Transactions on Graphics (SIGGRAPH 2016)

Other Core Venue Papers:

- 3 **Eccentricity Effects on Blur and Depth Perception**
Qi Sun, Fu-Chung Huang, Li-Yi Wei, David Luebke, Arie Kaufman, Joohwan Kim
 Optics Express 2020 [Ranked #2 journal in Optics & Photonics in Google Scholar]
- 2 **DiffTaichi: Differentiable Programming for Physical Simulation**
 Yuanming Hu, Luke Anderson, Tzu-Mao Li, **Qi Sun**, Nathan Carr, Jonathan Ragan-Kelley, Frédo Durand
 International Conference on Learning Representations (ICLR) 2020
- 1 **Learning to Reconstruct 3D Manhattan Wireframes from a Single Image**
 Yichao Zhou, Haozhi Qi, Simon Zhai, **Qi Sun**, Zhili Chen, Li-Yi Wei, Yi Ma
 ICCV 2019 (Oral Presentation, 4.3% acceptance rate)

Other Papers & Posters

- 7 **A Transparent Display with Per-Pixel Color and Opacity Control**
 TJ Rhodes, Gavin Miller, **Qi Sun**, Daichi Ito, Li-Yi Wei
 SIGGRAPH 2019 Emerging Technologies
- 6 **Benefits of 3D Immersion for Virtual Colonoscopy**
 Koosha Mirhosseini, **Qi Sun**, Krishna Gurijala, Bireswar Laha, Arie Kaufman
 IEEE Visualization Workshop on 3DVis 2014
- 5 **Data-Driven Human Motion Synthesis Based on Angular Momentum Analysis**
 Ping Hu, **Qi Sun**, Xiangxu Meng, and Jingliang Peng
 IEEE International Symposium on Circuits and Systems, ISCAS 2013
- 4 **Modeling 3D Faces from Samplings via Compressive Sensing**
Qi Sun, Yanlong Tang, and Ping Hu
 International Conference on Digital Image Processing, 2013
- 3 **Kinect-Based Automatic 3D High-Resolution Face Modeling**
Qi Sun, Yanlong Tang, Ping Hu, and Jingliang Peng
 International Conference on Image Analysis and Signal Processing 2012
- 2 **Has Half the Time Passed? Investigating Time Perception at Long Scales**
 Sandra Malpica, Belen Masia, Laura Herman, Gordon Wetzstein, David Eagleman, Diego Gutierrez, Zoya Bylinskii, **Qi Sun**
 Vision Science Society 2020

- 1 **Buyers Satisfaction in A Virtual Fitting Room Scenario Based on Realism of Avatar**
Qi Sun, Seyedkoosha Mirhosseini, Ievgeniia Gutenko, Ji Hwan Park, Charilaos Papadopoulos,
Bireswar Laha, Arie Kaufman
IEEE Symposium on 3D User Interfaces, 3DUI 2015

Books:

- 1 **Real VR: Digital Immersive Reality**
Springer Lecture Notes in Computer Science 2020 (Dagstuhl Book Chapter, to appear)

SELECTED PRESS/MEDIA

Adobe Glasswing Transparent Display.

The Verge, CNET, Axios, Next Reality, Printed Electronics World, TechHQ etc.

Towards Virtual Reality Infinite Walking.

BBC News (interview), SIGGRAPH blog, IEEE, Adobe News, NVIDIA Blog, Two Minute Papers, Stony Brook News, Road to VR, Hackaday, VR Focus, VR World, Inverse, ScienceDaily, eurekaAlert, newsAtlas, Sohu.com (Chinese), RedShark News, VR Soldier, Stylus, InAVate, 4gamer (Japanese) Virtual Reality Magazine (German), Microsiervos (Spanish) etc.

Mapping Virtual and Physical Reality.

SIGGRAPH Technical Papers Preview, Business Wire, Seamless Virtual Reality News (Japanese), leiphone.com/sina.cn etc. (Chinese), Tencent gameinstitute, Game II DOOSAN Gallery New York.

Perceptually-Guided Foveation for Light Field Displays.

Road to VR, Seamless Virtual Reality News (Japanese).

TEACHING/ADVISING

Guest Lecturer

CSE 564: Visualization, Stony Brook University	2018 Spring
Frontiers of Computing Studies, Peking University	2019 Summer
GAMES-CN Webinar	2017

Teaching Assistant

CSE 214: Computer Science II, Stony Brook University	2013 Fall
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Graduate Mentor

CSE 593: Independent Study in Computer Science, Stony Brook University	2013 Fall, 2014 Spring
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Advisees

Yuanming Hu, PhD student at MIT
Sandra Malpica, PhD student at University of Zaragoza
Yichao Zhou, PhD student at UC Berkeley
Dushyant Goyal, Master at SBU. Now machine learning research engineer at Element Inc.

INVITED TALKS

Human Learning: Understanding and Computing the Eyes and Brain in VR

Schloss Dagstuhl, Wadern, Germany	2019
Max-Planck-Institut für Informatik, Saarbrücken, Germany	2019
Microsoft Research Asia, Beijing, China	2019

Industrial Innovations in the Age of VR/AR

Wayfair Inc., Boston, MA 2019

Towards Virtual Reality Infinite Walking, Talk & Live Demo

Adobe Tech Summit, San Francisco, CA 2019

GPU Technology Conference (GTC), San Jose, CA 2018

Computational Methods for Immersive Perception

Harvard University, Cambridge, MA 2018

University of Florida, Gainesville, FL 2018

Adobe Research, San Jose, CA 2017

SERVICE

Conference Program Committee

ACM ETRA Short Papers 2020

ACM CHI Late-Breaking Works 2020

ACM SIGGRAPH Asia Technical Briefs and Posters 2019

ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games (i3D) 2019-2020

Reviewer

ACM SIGGRAPH, Nature Scientific Reports, ACM CHI, IEEE Visualization, Computer Graphics Forum (CGF), ACM Transaction on Graphics (TOG), ACM User Interface Software and Technology (UIST), ACM i3D, IEEE 3D User Interfaces (3DUI), IEEE VR [both Conference and Journal tracks], IEEE ISMAR, ACM Symposium on Applied Perception (SAP), ACM ETRA, IEEE Access, IEEE Consumer Electronics Magazine

Other

Adobe Research PhD fellowship committee 2018 - 2019

Adobe Research Women-in-Technology Scholarship committee 2019

AWARDS

IEEE VR 2019 Best Dissertation Award 2020

Stony Brook Computer Science Special Chair Fellowship 2013 - 2014

Outstanding Bachelor Thesis Award of Shandong Province, China 2013

GRANTED PATENTS

Adjusting an Angular Sampling Rate during Rendering Utilizing Gaze Information

Qi Sun, Fu-Chung Huang, Joohwan Kim and David Luebke

US10395624B2, granted 2019-08-27

System and Method for Generating a Progressive Representation Associated with Subjectively Mapped Virtual and Physical Reality Image Data

Arie Kaufman, **Qi Sun** and Li-Yi Wei

US10403043B2, granted 2019-09-03