

Qi Sun

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🌐 <http://www.qisun.me>

🌐 [Google Scholar](#)

EDUCATION

Doctor of Philosophy Computer Science, Stony Brook University, <i>Stony Brook, NY</i> Dissertation: Computational Methods for Immersive Perception Advisor: Arie Kaufman 🏆 IEEE VR 2019 Best Dissertation Award	08/2013 - 05/2018
Bachelor of Science Mathematics, Taishan Honors College, Shandong University, China Computer Science, Shandong University, China	08/2013 10/2010 - 08/2013 09/2009 - 10/2010

EMPLOYMENT

Associate Professor Tandon School of Engineering & Courant Institute School, New York University	01/2026 -
Assistant Professor Tandon School of Engineering, New York University	01/2021 - 01/2026
Research Scientist Adobe Research, <i>San Jose, CA</i>	06/2018 - 01/2021
Research Intern Adobe Research, Procedural Imaging Group, <i>San Jose, CA</i>	07/2017 - 09/2017
Research Intern NVIDIA Research, New Experiences Group, <i>Redmond, WA</i>	04/2017 - 07/2017
Research Intern NVIDIA Research, New Experiences Group, <i>Santa Clara, CA</i>	06/2016 - 08/2016
Research Intern Microsoft Research Asia, Hardware Computing Group, <i>Beijing, China</i>	11/2012 - 02/2013

AWARDS AND HONORS

ACM i3D 2025 Best Poster Award	2025
NYU Tandon Junior Faculty Research Award	2024
NYU Goddard Junior Faculty Fellowship Award	2024
SONY Focused Faculty Research Award	2024
ACM SAP 2024 Best Paper Award	2024
ACM SAP 2024 Best Presentation Award	2024
ACM SIGGRAPH 2024 Best Paper Honorable Mention Award	2024
IEEE VR 2024 Best Paper Honorable Mention Award	2024
IEEE VIS 2023 Best Paper Honorable Mention Award	2023
ACM SIGGRAPH 2022 Best Paper Award	2022
ACM SIGGRAPH 2022 Best Paper Honorable Mention Award	2022

IEEE ISMAR 2022 Best Journal Paper Award	2022
NVIDIA Applied Research Accelerator Award	2022
IEEE VR Best Dissertation Award	2020

STUDENT AWARDS

Budmonde Duinkharjav

1. Deborah Rosenthal, MD Award: NYU Outstanding Performance on PhD Qualification 2022
2. Snap Research Fellowship Honorable Mention 2022

Yunxiang Zhang

1. Deborah Rosenthal, MD Award: NYU Outstanding Performance on PhD Qualification 2024

Kenneth Chen

1. Deborah Rosenthal, MD Award: NYU Outstanding Performance on PhD Qualification 2025

FULL PUBLICATIONS

students in orange, postdoc in blue, visiting scholars in olive, myself bolded

57. **Cost-Aware Routing for Efficient Text-To-Image Generation**
Qinchan Li, Kenneth Chen, Changyue Su, Wittawat Jitkrittum, **Qi Sun**, Patsorn Sangkloy
Transactions on Machine Learning Research 2026
56. **HOICraft: In-Situ VLM-based Authoring Tool for Part-Level Hand-Object Interaction Design in VR**
Dohui Lee, **Qi Sun**, Sang Ho Yoon
ACM Conference on Human Factors in Computing Systems (CHI) 2026
55. **ML-PEA: Machine Learning-Based Perceptual Algorithms for Display Power Optimization**
Kenneth Chen, Nathan Matsuda, Thomas Wan, Ajit Ninan, Alexandre Chapiro, **Qi Sun**
Eurographics 2026
54. **GeneVA: A Dataset of Human Annotations for Generative Text to Video Artifacts**
Jenna Kang, Patsorn Sangkloy, Maria Beatriz Silva, Kenneth Chen, Niall L. Williams, **Qi Sun**
WACV 2026
53. **Perceptually Guided 3DGS Streaming and Rendering for Virtual Reality**
Yunxiang Zhang, Sai Harsha Mupparaju, Kenneth Chen, Jenna Kang, Xinyu Zhang, Maito Omori, Kazuyuki Arimatsu, **Qi Sun**
WACV 2026
52. **Novel View Synthesis for 3D Computer-Generated Holograms Using Deep Neural Fields**
Kenneth Chen, Anzhou Wen, Yunxiang Zhang, Praneeth Chakravarthula, **Qi Sun**
Optics Express 2025
51. **FovealNet: Advancing AI-Driven Gaze Tracking Solutions for Efficient Foveated Rendering in Virtual Reality**
Wenxuan Liu, Budmonde Duinkharjav, **Qi Sun**, Sai Qian Zhang
IEEE TVCG (IEEE VR) 2025

50. **Performance Analysis of Catch-Up Eye Movements in Visual Tracking**
Jenna Kang, Budmonde Duinkharjav, Niall L. Williams, Qi Sun
ACM SIGGRAPH Asia 2025 Conference Proceedings
49. **Image-GS: Content-Adaptive Image Representation via 2D Gaussians**
Yunxiang Zhang*, Bingxuan Li*, Alexandr Kuznetsov, Akshay Jindal, Stavros Diolatzis, Kenneth Chen, Anton Sochenov, Anton Kaplanyan, Qi Sun
ACM SIGGRAPH 2025 Conference Proceedings
48. **What is HDR? Perceptual Impact of Luminance and Contrast in Immersive Displays**
Kenneth Chen, Nathan Matsuda, Jon McElvain, Yang Zhao, Thomas Wan, Qi Sun*, Alexandre Chapiro*
ACM SIGGRAPH 2025 Conference Proceedings
47. **Concurrent Learning with Aggregated States via Randomized Least Squares Value Iteration**
Yan Chen, Qinxun Bai, Yiteng Zhang, Maria Dimakopoulou, Shi Dong, Qi Sun, Zhengyuan Zhou
ICML 2025
46. **Process Only Where You Look: Hardware and Algorithm Co-optimization for Efficient Gaze-Tracked Image Rendering in Virtual Reality**
Haiyu Wang, Wenxuan Liu, Kenneth Chen, Qi Sun, Sai Qian Zhang
ACM/IEEE ISCA 2025
45. **Perceptually-Guided Acoustic “Foveation”**
Xi Peng, Kenneth Chen, Iran Roman, Juan Pablo Bello, Qi Sun*, Praneeth Chakravarthula*
IEEE VR 2025
44. **BlendFusion: Procedural 3D Texturing Assistant with View-Consistent Generative Models**
Qinchan Li, Finley Torrens, Kenneth Chen, Qi Sun
ACM i3D 2025, poster
43. **Evaluating Visual Perception of Object Motion in Dynamic Environments**
Budmonde Duinkharjav, Jenna Kang, Gavin Miller, Chang Xiao, Qi Sun
ACM Transactions on Graphics (TOG) (SIGGRAPH Asia 2024, journal track)
42. **🏆 PEA-PODs: Perceptual Evaluation Of Algorithms For Power Optimization In XR Displays**
Kenneth Chen, Thomas Wan, Nathan Matsuda, Ajit Ninan, Alexandre Chapiro*, Qi Sun*
[Best Paper Honorable Mention Award] ACM Transactions on Graphics (TOG) 43.4 (2024).
(SIGGRAPH 2024, journal track)
41. **🏆 GazeFusion: Saliency-guided Image Generation**
Yunxiang Zhang, Nan Wu, Connor Lin, Gordon Wetzstein, Qi Sun
[Best Paper Award & Best Presentation Award] ACM Applied Perception (SAP 2024, journal track)
40. **Measuring and Predicting Multisensory Reaction Latency: A Probabilistic Model for Visual-Auditory Integration**
Xi Peng, Yunxiang Zhang, Daniel Jiménez-Navarro, Ana Serrano, Karol Myszkowski, Qi Sun
IEEE TVCG 30.11 (2024). (ISMAR 2024, journal track)

39. **🏆 Modeling The Impact Of Head-Body Rotations On Audio-Visual Spatial Perception For Virtual Reality Applications**
Edurne Bernal-Berdun, Mateo Vallejo, **Qi Sun**, Ana Serrano, **Diego Gutierrez**
[Best Paper Honorable Mention Award] IEEE TVCG 30.5 (2024). (IEEE VR 2024, journal track)
38. **HuBar: A Visual Analytics Tool to Explore Human Behaviour based on fNIRS in AR guidance systems**
Sonia Castelo, et al., **Qi Sun**, et al.
IEEE TVCG (IEEE VIS 2024, journal track)
37. **Accelerating Saccadic Response Through Spatial And Temporal Cross-Modal Misalignments**
Daniel Jiménez Navarro, **Xi Peng**, **Yunxiang Zhang**, Karol Myszkowski, **Qi Sun**, Ana Serrano
ACM SIGGRAPH 2024 Conference Proceedings
36. **May the Force Be with You: Dexterous Finger Force-Aware XR Interface**
Fengze Zhang*, **Yunxiang Zhang***, **Xi Peng**, **Sky Achitoff**, **Qi Sun**
IEEE ISMAR 2024
35. **Toward User-Aware Interactive Virtual Agents: Generative Multi-Modal Avatar Behaviors in VR**
Bhasura Gunawardhana, **Yunxiang Zhang**, **Qi Sun**, Zhigang Deng
IEEE ISMAR 2024
34. **Low Latency Point Cloud Rendering with Learned Splatting**
Yueyu Hu, Ran Gong, **Qi Sun**, Yao Wang
CVPR Workshops 2024
33. **Exploiting Human Color Discrimination For Memory- And Energy-Efficient Image Encoding In Virtual Reality**
Nisarg Ujjainkar, **Budmonde Duinkharjav**, **Kenneth Chen**, **Qi Sun**, Yuhao Zhu
ASPLOS 2024
32. **AutoColor: Learned Light Power Control for Multi-Color Holograms**
Yicheng Zhan, Koray Kavakl, Hakan Urey, **Qi Sun**, Kaan Akşit
SPIE AR, VR, MR 2024
31. **The Shortest Route Is Not Always the Fastest: Probability-Modeled Stereoscopic Eye Movement Completion Time in VR**
Budmonde Duinkharjav, **Benjamin Liang**, Rachel Brown, Anjul Patney, **Qi Sun**
ACM Transactions on Graphics (TOG) 42.6 (2023). (SIGGRAPH Asia 2023, journal track)
30. **🏆 ARGUS: Visualization Of AI-Assisted Task Guidance In AR**
S.C. Quispe, et al., **Q. Sun**, et al.
[Best Paper Honorable Mention Award] IEEE TVCG 30.1 (2024). (VIS 2023, journal track)
29. **Toward Optimized VR/AR Ergonomics: Modeling And Predicting User Neck Muscle Contraction**
Yunxiang Zhang, **Kenneth Chen**, **Qi Sun**
ACM SIGGRAPH 2023 Conference Proceedings
28. **Imperceptible Color Modulation For Power Saving In VR/AR**

- Kenneth Chen, Budmonde Duinkharjav, Qi Sun, et al.
ACM SIGGRAPH 2023 Emerging Technologies
27. **Reconstructing Room Scales with a Single Sound for Augmented Reality Displays**
Benjamin Liang, Andrew Liang, Iran Roman, Qi Sun
Journal of Information Display 24.1 (2023)
 26. **Color-Perception-Guided Display Power Reduction For Virtual Reality**
Budmonde Duinkharjav*, Kenneth Chen*, Qi Sun, et al.
ACM TOG 41.6 (2022). (SIGGRAPH Asia 2022, journal track)
 25. **Force-Aware Interface Via Electromyography For Natural VR/AR Interaction**
Yunxiang Zhang, Benjamin Liang, Qi Sun, et al.
ACM TOG 41.6 (2022). (SIGGRAPH Asia 2022, journal track)
 24. 🏆 **FoV-NeRF: Foveated Neural Radiance Fields For Virtual Reality**
Nianchen Deng, Budmonde Duinkharjav, Qi Sun, et al.
[Best Paper Award] IEEE TVCG 28.11 (2022). (ISMAR 2022, journal track)
 23. 🏆 **Image Features Influence Reaction Time: A Learned Probabilistic Perceptual Model For Saccade Latency**
Budmonde Duinkharjav, Qi Sun, et al.
[Best Paper Award] ACM TOG 41.4 (2022). (SIGGRAPH 2022, journal track)
 22. 🏆 **Joint Neural Phase Retrieval And Compression For Energy- And Computation-Efficient Holography On The Edge**
Yujie Wang, Praneeth Chakravarthula, Qi Sun, Baoquan Chen
[Best Paper Honorable Mention Award] ACM TOG 41.4 (2022). (SIGGRAPH 2022, journal track)
 21. **Instant Reality: Gaze-Contingent Perceptual Optimization For 3D Virtual Reality Streaming**
Shaoyu Chen, Budmonde Duinkharjav, Qi Sun, et al.
IEEE TVCG 28.5 (2022). (IEEE VR 2022, journal track)
 20. **Larger Visual Changes Compress Time: The Inverted Effect of Asemantic Visual Features on Interval Time Perception**
Sandra Malpica, Qi Sun, et al.
PloS one 17, no. 3 (2022)
 19. **Dually Noted: Layout-Aware Annotations With Smartphone Augmented Reality**
Jing Qian, Qi Sun, et al.
ACM CHI 2022
 18. **Modeling And Optimizing Human-In-The-Loop Visual Perception Using Immersive Displays: A Review**
Qi Sun, Budmonde Duinkharjav, Anjul Patney
SID Symposium 2022
 17. **Leveraging Human Visual Perception For An Optimized Virtual Reality Experience**
Qi Sun
IEEE Computer Graphics and Applications 41.6 (2021)

16. **Gaze-Contingent Retinal Speckle Suppression For Holographic Displays**
Praneeth Chakravarthula, **Q. Sun**, et al.
IEEE TVCG 27.11 (2021). (ISMAR 2021, journal track)
15. **Tailored Reality: Perception-Aware Scene Restructuring For Adaptive VR Navigation**
Zhi-Chao Dong, **Q. Sun**, et al.
ACM TOG 40.5 (2021)
14. **Eccentricity Effects on Blur and Depth Perception**
Qi Sun, et al.
Optics Express 28.5 (2020)
13. **Has Half the Time Passed? Investigating Time Perception at Long Scales**
Sandra Malpica, **Qi Sun**, et al.
Vision Science Society 2020
12. **Deep Multi Depth Panoramas for View Synthesis**
K. Lin, **Q. Sun**, et al.
ECCV 2020
11. **DiffTaichi: Differentiable Programming for Physical Simulation**
Yuanming Hu, **Qi Sun**, et al.
ICLR 2020
10. **Reducing Simulator Sickness with Perceptual Camera Control**
Ping Hu, **Qi Sun**, et al.
ACM TOG (SIGGRAPH Asia 2019)
9. **Learning to Reconstruct 3D Manhattan Wireframes from a Single Image**
Yichao Zhou, **Qi Sun**, et al.
ICCV 2019 (Oral Presentation)
8. **A Transparent Display with Per-Pixel Color and Opacity Control**
TJ Rhodes, **Qi Sun**, et al.
SIGGRAPH 2019 Emerging Technologies
7. **Towards Virtual Reality Infinite Walking: Dynamic Saccadic Redirection**
Qi Sun, et al.
ACM TOG (SIGGRAPH 2018)
6. **Perceptually-Guided Foveation for Light Field Displays**
Qi Sun, et al.
ACM TOG (SIGGRAPH Asia 2017)
5. **Mapping Virtual and Physical Reality**
Qi Sun, Li-Yi Wei, Arie Kaufman
ACM TOG (SIGGRAPH 2016)
4. **Buyers Satisfaction in A Virtual Fitting Room Scenario Based on Realism of Avatar**
Qi Sun, et al.
IEEE 3DUI 2015
3. **Benefits of 3D Immersion for Virtual Colonoscopy**
Koosha Mirhosseini, **Qi Sun**, et al.

IEEE 3DVis 2014

2. **Data-Driven Human Motion Synthesis Based on Angular Momentum Analysis**

Ping Hu, **Qi Sun**, et al.

IEEE ISCAS 2013

1. **Modeling 3D Faces from Samplings via Compressive Sensing**

Qi Sun, et al.

ICDIP 2013

0. **Kinect-Based Automatic 3D High-Resolution Face Modeling**

Qi Sun, et al.

IASP 2012

Book Chapters

1 **Real VR: Digital Immersive Reality**

Springer Lecture Notes in Computer Science 2020 (Dagstuhl Book Chapter)

SOFTWARE CREDITS

Adobe Dimension

GRANTED PATENTS

Delivering a virtual environment with dynamic level of detail per object

Q Sun, X Sun, S Petrangeli, C Shaoyu, LY Wei, JIE Vallespi

US11941747, granted 2024-03-26

Sharing of user markings between printed and digital documents

Tong Sun, **Qi Sun**, Jing Qian, CM Wigington

US11520974B2, granted 2022-12-06

Classifying panoramic images

Qi Sun, Li-Yi Wei, Joon-Young Lee, Jonathan Eisenmann, Jinwoong Jung, Byungmoon Kim

US10991085B2, granted 2021-04-27

Dynamic mapping of virtual and physical interactions

Qi Sun, Paul John Asente, Li-Yi Wei, Jingwan Lu

US10957103B2, granted 2021-03-23

Controlling an augmented reality display with transparency control using multiple sets of video buffers

Tenell Glen Rhodes Jr, Gavin Stuart Peter Miller, Li-Yi Wei, **Qi Sun**

US10847117, granted 2020-11-24

Saccadic redirection for virtual reality locomotion

Qi Sun, Anjul Patney, Omer Shapira, Morgan McGuire, Aaron Lefohn, David Luebke

US10573061B2, granted 2020-02-25

Path planning for virtual reality locomotion

Qi Sun, Anjul Patney, Omer Shapira, Morgan McGuire, Aaron Lefohn, David Luebke

US10573071B2, granted 2020-02-25

Adjusting an Angular Sampling Rate during Rendering Utilizing Gaze Information

Qi Sun, Fu-Chung Huang, Joochwan 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

SELECTED KEYNOTE AND DISTINGUISHED TALKS

Toward Human-Centered XR: Bridging Cognition and Computation

Keynote Speech at IEEE VR Workshop on Perception-driven Graphics 2025

Keynote Speech at ACM Symposium on Applied Perception, Dublin 2024

University of Rochester, Voice of XR Series 2024

Carnegie Mellon University VASC Seminar 2024

Meta Academic Forum at Optica Fio+LS 2024

Human-Centric Optical Designs and Architectures

Plenary Panel at SPIE Photonics West AR|VR|MR 2024

Co-Optimizing Human-System Performance in XR

Keynote Speech at the 36th Conference on Graphics, Patterns and Images (SIBGRAPI), Brazil 2023

Departmental Colloquium at University of Houston 2022

Digital Twins: New Frontiers Today

MIT Horizon Podcast 2022

SELECTED EXTERNAL PRESS/MEDIA

Image Features Influence Reaction Time.

ACM SIGGRAPH, EurekaAlert!, NVIDIA Developer Blog, etc.

Adobe Glasswing Transparent Display.

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

Towards Virtual Reality Infinite Walking.

BBC News (personal 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).

PUBLIC EDUCATION

2. Effective User Studies in Computer Graphics

Eurographics 2023

1. Visual Computing for Computer Architect

ASPLOS 2023

NYU COURSES

6. **Spring 2024 CS-GY 6313 Information Visualization**
5. **Fall 2023 CS-GY 9223 Virtual and Augmented Reality**
4. **Spring 2023 CS-GY 6313 Information Visualization**
3. **Fall 2022 CS-GY 9223 Virtual and Augmented Reality**
2. **Spring 2022 CS-GY 6313 Information Visualization**
1. **Fall 2021 CS-GY 6313 Information Visualization**

POSTDOCTORAL RESEARCHERS

Patsorn Sangkloy, 2024 Fall-
Jingyang Zhou, 2025 Spring-
Niall Williams, CSE Faculty Fellow, 2024 Fall-
Zhaoxi Zhang, CUSP Faculty Fellow, 2023 Fall-

PHD ADVISEES

Budmonde Duinkharjav, PhD student at NYU, 2021 Spring - 2025 Spring. Next: NVIDIA
Yunxiang Zhang, PhD student at NYU, 2022 Fall-
Kenneth Chen, PhD student at NYU, 2023 Fall-
Jenna Kang, PhD student at NYU, 2024 Fall-
Bingxuan Li, PhD student at NYU, 2024 Fall-

PHD THESIS COMMITTEE

Zhenyi He, NYU Courant
Karl Rosenberg, NYU Courant
Ho-Hsiang Wu, NYU Steinhardt
Shaoyu Chen, NYU Tandon
Guande Wu, NYU Tandon

Yuan Xu, Applied Physics, Columbia University
Daniel Martin, University of Zaragoza
Luca Surace, Università della Svizzera italiana

SERVICE

Editor

Associate Editor, IEEE Transactions on Visualization and Computer Graphics (TVCG)	2023-
Associate Editor, ACM Transactions on Applied Perception	2023-
MDPI Applied Sciences Special Issue on "New Frontiers in Virtual Reality (VR) Systems"	2021
Frontiers in Virtual Reality on "Virtual Reality for Telepresence"	2021

Chairing

SIGGRAPH Asia, Technical Communications	2026
IEEE ISMAR, Paper Chair	2025
ACM Symposium on Applied Perception, Conference Chair	2023

IEEE VR, Chair of Publicity	2023
IEEE ISMAR, Chair of Video and Registration	2022

Conference Program Committee

ACM SIGGRAPH	2024 - 2025
ACM SIGGRAPH Asia (COI Coordinator 2026)	2023
ACM Annual Symposium on Computer Animation (SCA)	2023
Computer Graphics International (CGI)	2023 - 2024
IEEE VR	2023
IEEE VGTC VR Best Dissertation Award	2022-2024
ACM/SIGGRAPH conference on Motion, Interaction, and Games (MIG)	2022
Pacific Graphics	2022-2024
ACM Symposium on Applied Perception (SAP)	2022
Eurographics Symposium on Rendering	2022
IEEE ISMAR	2021-2024
ACM SIGGRAPH Asia XR and VR Theater	2020-2021
Grace Hopper Celebration (GHC)	2020,2023
ACM ETRA	2020-2021, 2023
ACM CHI Late-Breaking Works	2020-2021
ACM SIGGRAPH Asia Technical Briefs and Posters	2019
ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games (i3D)	2019-2022, 2024, 2025
National Science Foundation (NSF) panelist	2020, 2021, 2024
Department of Homeland Security (DHS) XR Technologies Ideation Workshop panelist	2024

Internal

NYU Organizer, NYU-KAIST program on Metaverse-AI	2023
Faculty Search Committee, NYU Shanghai, Urban x CS position	2023
Seminar Organizer, NYU CUSP Seminar Series	2023-2024
Committee Member, NYU CSE PhD Admission	2023-2024
Chair/Committee Member, NYU CUSP Fellowship program	2022-2023
Committee Member, NYU CUSP C-Faculty Committee	2023
Committee Member, NYU CSE Visiting Faculty	2023-2024
Committee Member, NYU CSE PhD Program	2021-
Co-Organizer, NYU CSE New PhD Student Welcome	2021
Mentor, NYU GLASS Program	2021
Mentor, NYU CUSP Capstone Project	2021-2024
NYU CUSP Faculty Fellowship search committee	2021-2022, 2024
Adobe Research PhD fellowship committee	2018 - 2019
Adobe Research Women-in-Technology Scholarship committee	2019