

Brian Chao

brianchc@stanford.edu | <https://bchao1.github.io>

— Education

Stanford University | Ph.D. Candidate in Electrical Engineering | 2022 – Present

Advisor: Gordon Wetzstein. **Supported by NSF GRFP and Stanford SGF Fellowships.**

National Taiwan University | B.S. in Electrical Engineering | 2017 – 2021

— Research Interests

My research focuses on spatial computing for immersive experiences and robotics, including token-efficient visual generation, 3D scene reconstruction, and advanced rendering algorithms for AR/VR.

— Industry Experience

Meta Reality Labs, Display Systems Research | Research Scientist Intern

Meta | 2025 / 6 – 2026 / 1

Working on neural rendering algorithms for next-generation 3D displays.

Meta Reality Labs, XR Hyperscape (formerly XR Hyperreal) | Research Scientist Intern

Meta | 2024 / 6 – 2025 / 1

Worked on Gaussian splatting with texture mapping for 3D scene reconstruction [3]. Paper accepted to CVPR 2025.

— Selected Publications

1. **Brian Chao**^{*}, Lior Yariv^{*}, Howard Xiao, Gordon Wetzstein, “Foveated Diffusion: Efficient Spatially Adaptive Image and Video Generation”, *arXiv 2026 (in submission)*
2. **Brian Chao**, Jacqueline Yang, Suyeon Choi, Manu Gopakumar, Gordon Wetzstein, “Random-phase Wave Splatting of Translucent Primitives for Computer-generated Holography”, *arXiv 2025*
3. Suyeon Choi^{*}, **Brian Chao**^{*}, Jacqueline Yang, Manu Gopakumar, Gordon Wetzstein, “Gaussian Wave Splatting for Computer-generated Holography”, *SIGGRAPH, 2025*
4. **Brian Chao**, Hung-Yu Tseng, Lorenzo Porzi, Chen Gao, Tuotuo Li, Qinbo Li, Ayush Saraf, Jia-Bin Huang, Johannes Kopf, Gordon Wetzstein, and Changil Kim, “Textured Gaussians for Enhanced 3D Scene Appearance Modeling”, *CVPR, 2025*
5. **Brian Chao**, Manu Gopakumar, Suyeon Choi, Liang Shi, Jonghyun Kim, and Gordon Wetzstein, “Large Etendue 3D Holographic Display with Content-Adaptive Dynamic Fourier Modulation”, *SIGGRAPH Asia, 2024*
6. **Brian Chao**, Manu Gopakumar, Suyeon Choi, and Gordon Wetzstein, “High-Brightness Holographic Projection”, *Optics Letters, 2023*
7. Manu Gopakumar, Gun-Yeal Lee, Suyeon Choi, **Brian Chao**, Yifan Peng, Jonghyun Kim, and Gordon Wetzstein, “Full-colour 3D Holographic Augmented-Reality Displays with Metasurface Waveguides”, *Nature, 2024*

8. **Brian Chao***, Suyeon Choi*, Manu Gopakumar*, Gun-Yeal Lee, Jonghyun Kim, and Gordon Wetzstein, “Neural Holographic Near-eye Displays for Virtual Reality”, *SIGGRAPH Emerging Technologies*, 2023
9. Seung-Woo Nam, Dongyeon Kim, Suyeon Choi, Juhyun Lee, Siwoo Lee, Manu Gopakumar, **Brian Chao**, Gordon Wetzstein, and Yoochan Jeong, “Holographic Parallax”, *SIGGRAPH Emerging Technologies*, 2024
10. **Brian Chao***, Chang-Le Liu*, and Homer H. Chen, “Time-Division Multiplexing Light Field Display with Learned Coded Apertures”, *Transactions on Image Processing*, 2022
11. **Brian Chao**, Chang-Le Liu, and Homer H. Chen, “Robust Light Field Synthesis from Stereo Images with Left-Right Geometric Consistency”, *International Conference on Image Processing*, 2021
12. **Brian Chao***, Pin-Lun Hsu*, and Yu-Chiang Frank Wang, “Self-supervised Deep Learning for Fisheye Image Rectification”, *International Conference on Acoustics, Speech, and Signal Processing*, 2020

— Skills

Python · PyTorch · Javascript · MATLAB · C++ · C · CUDA

— Relevant Coursework

Stanford University

Computer Graphics: Rendering, Geometry, and Image Manipulation · Computational Imaging · Virtual Reality · Signal Processing for Machine Learning · Neural Models for 3D Geometry · Introduction to Linear Dynamical Systems · Modern Optics

National Taiwan University

Digital Visual Effects · Computer Vision · Computer Graphics · Convex Optimization · Scientific Computing · Optical System Design · Fundamentals of Electro-optics