Brian **Chao**

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

— Education

Stanford University | Ph.D. Candidate in Electrical Engineering | 2022 – Present
Advisor: Gordon Wetzstein

National Taiwan University | B.S. in Electrical Engineering | 2017 – 2021
Cum. GPA: 4.25 / 4.30 Major GPA: 4.25 / 4.30 Rank: 3%

— Research Interests

My research focuses on the integration of physics, computer graphics, and machine learning (neural rendering, generative models, etc.) for novel imaging and display system design to enable new capabilities in AR/VR and scene reconstruction.

— Industry Experience

Meta Reality Labs, Display Systems Research | Research Scientist Intern | Manager: Grace Kuo
Meta | 2025 / 6 –
Working on real-time rendering and generative modeling for next-generation 3D displays.

Meta Reality Labs, XR Hyperreal | Research Scientist Intern | Manager: Changil Kim
Meta | 2024 / 6 – 2025 / 1
Worked on Gaussian splatting with texture mapping for 3D scene reconstruction [3].

— Selected Publications

1. **Brian Chao**, Jacqueline Yang, Suyeon Choi, Manu Gopakumar, Gordon Wetzstein, "Random-phase Gaussian Wave Splatting for Computer-generated Holography", *in submission*

2. Suyeon Choi*, **Brian Chao***, Jacqueline Yang, Manu Gopakumar, Gordon Wetzstein, "Gaussian Wave Splatting for Computer-generated Holography", *SIGGRAPH,* 2025

3. **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

4. **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

5. **Brian Chao**, Manu Gopakumar, Suyeon Choi, and Gordon Wetzstein, "High-Brightness Holographic Projection", *Optics Letters*, 2023

6. 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

7. **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

8. 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

9. **Brian Chao***, Chang-Le Liu*, and Homer H. Chen, "Time-Division Multiplexing Light Field Display with Learned Coded Apertures", *Transactions on Image Processing*, 2022

10. **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

11. **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