Brian **Chao**

brian.chao@stanford.edu | https://bchao1.github.io

— Education

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

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 and 3D-ML techniques for novel imaging and display system design to enable new capabilities in AR/VR and scene reconstruction.

— Research Experience

Stanford Computational Imaging Lab | PhD Candidate | Advisor: Gordon Wetzstein
Stanford University | 2022 / 9 – Present
Supported by NSF GRFP and the Stanford Graduate Fellowship.

Multimedia Processing and Communications Lab | Undergraduate Research Assistant | Advisor: Homer H. Chen
National Taiwan University | 2020 / 9 – 2022 / 1

Vision and Learning Lab | Undergraduate Research Assistant | Advisor: Y.C. Frank Wang
National Taiwan University | 2018 / 7 – 2020 / 6

— Industry Experience

Meta Reality Labs, Display Systems Research | Research Scientist Intern | Manager: Grace Kuo
Meta | 2025 / 6 –

Meta Reality Labs, XR Hyperreal | Research Scientist Intern | Manager: Changil Kim
Meta | 2024 / 6 – 2025 / 1

— Selected Publications

1. **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*
2. **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 Aisa*, 2024
3. **Brian Chao**, Manu Gopakumar, Suyeon Choi, and Gordon Wetzstein, "High-Brightness Holographic Projection", *Optics Letters*, 2023
4. 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
5. **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
6. 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

7. **Brian Chao***, Chang-Le Liu*, and Homer H. Chen, "Time-Division Multiplexing Light Field Display with Learned Coded Apertures", *Transactions on Image Processing*, 2022
8. **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
9. **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

Proficient

Python · PyTorch · Javascript · MATLAB

Familiar

C++ · C · Verilog · Tensorflow · Julia · 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