

## Academic Qualifications

- 2018/09 – 2023/12  **Ph.D. in Optical Engineering, Zhejiang University (ZJU), Hangzhou, China**
- 2014/09 – 2018/06  **B.E. in Optoelectronic Information Science and Engineering, South China University of Technology (SCUT), Guangzhou, China**

## Previous Academic Positions

- 2024/01 – 2024/03  **Research Assistant, State Key Laboratory of Extreme Photonics and Instrumentation, Zhejiang University**

## Present Academic Position

- 2024/04 – Present  **Postdoctoral Fellow, Department of Electrical and Electronic Engineering, The University of Hong Kong**

## Most Representative Publications

**Five in recent five years** (\* Equal contributors; ☐ Corresponding authors)

- 1  **X. Liu, S. Tu, et al.**, “In situ fully vectorial tomography and pupil function retrieval of tightly focused fields,” *Nature Communications*, 2025, (IF = 17.2).
- 2  Y. Hu\*, **X. Liu\***, ☐, et al., “Diffraction modeling between arbitrary planes using angular spectrum rearrangement,” *Optica*, 2025, (IF = 10.1), **[Monthly Top Downloads]**.
- 3  H. Wei\*, **X. Liu\***, et al., “Modeling off-axis diffraction with the least-sampling angular spectrum method,” *Optica*, 2023, (IF = 10.1), **[Monthly Top Downloads]**.
- 4  H. Wei, **X. Liu**, et al., “Learned off-aperture encoding for wide field-of-view RGBD imaging,” *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2025, (IF = 20.4).
- 5  **X. Liu**, L. Li, et al., “Investigating deep optics model representation in affecting resolved all-in-focus image quality and depth estimation fidelity,” *Optics Express*, 2022, (IF = 3.5).

## Five else

- 1  **X. Liu**, Y. Hu, et al., “Fast generation of arbitrary optical focus array,” *Optics and Lasers in Engineering*, 2023, (IF = 4.4).
- 2  **X. Liu**, S. Tu, et al., “Calibration of phase-only liquid-crystal spatial light modulators by diffractogram analysis,” *Optics and Lasers in Engineering*, 2022, (IF = 4.4).
- 3  S. Tu, **X. Liu**, et al., “Accurate background reduction in adaptive optical three-dimensional stimulated emission depletion nanoscopy by dynamic phase switching,” *ACS Photonics*, 2022, (IF = 6.9), **[Cover]**.
- 4  **X. Liu**, Y. Peng, et al., “Generation of arbitrary longitudinal polarization vortices by pupil function manipulation,” *Advanced Photonics Research*, 2021, (IF = 3.9), **[Cover]**.
- 5  **X. Liu**, S. Tu, et al., “Aberrations in structured illumination microscopy: A theoretical analysis,” *Frontiers in Physics*, 2020, (IF = 2.5).

## Professional Qualifications, Prizes and Awards

- 2025  **Outstanding Young Rising Star Awards (1/20)**, Chinese Society for Optical Engineering.
- 2024  **Honorable mention of the three-year achievement exhibition of computational imaging**, Chinese Society for Optical Engineering.
- 2022  **Individual scholarship for innovation and entrepreneurship**, Zhejiang University.  
 **Junshi Chen scholarship**, Zhejiang University.  
 **Outstanding graduate student**, Zhejiang University.  
 **Merit graduate student**, Zhejiang University.
- 2021  **Junshi Chen scholarship**, Zhejiang University.  
 **Outstanding graduate student**, Zhejiang University.

## Professional Qualifications, Prizes and Awards (continued)

- Merit graduate student, Zhejiang University.
- Outstanding graduate student cadres, Zhejiang University.
- 2020 ■ Junshi Chen scholarship, Zhejiang University.
- Outstanding graduate student cadres, Zhejiang University.
- 2019 ■ Outstanding graduate student, Zhejiang University.

## Research Output

### Invited Talks

- 2025/09 ■ The 5th International Conference on Computational Imaging, Suzhou, China  
"Exploring advanced imaging with computational optics"
- 2024/09 ■ The 4th International Conference on Computational Imaging, Xiamen, China  
"Free-space wave propagation modeling with least-sampling angular spectrum method"
- 2024/05 ■ Guest Lecture, King Abdullah University of Science and Technology, Saudi Arabia  
"Exploring wave propagation modeling in free space"

### Granted Patents

- Xiang Hao, **Xin Liu**, Cuifang Kuang, Xu Liu, "A Method for Point Spread Function Reconstruction", CN110133849B.
- Xiang Hao, **Xin Liu**, Shijie Tu, Xu Liu, "A Two-Dimensional Rapid Beam Scanning Module for Confocal Fluorescence Microscopy", CN109491065A.
- Xu Liu, **Xin Liu**, Xiang Hao, Cuifang Kuang, Haifeng Li, "A Device for Common-path Beam Modulation in Imaging and Lithography Systems", CN110568650B.
- Xiang Hao, **Xin Liu**, Yubing Han, Cuifang Kuang, Xu Liu, "A Method and Device for Calibration of Phase-only Spatial Light Modulators", CN112697401A.
- Xiang Hao, **Xin Liu**, Cuifang Kuang, Xu Liu, "A Device for Generating Super-resolution Optical Focus Arrays", CN110568731B.
- Xiang Hao, Shijie Tu, **Xin Liu**, Xu Liu, "A Multicolor Super-Resolution Microscope with Automatic Alignment Capability", CN109358030B.

### Reviewer Service

- Optica, SIGGRAPH (Asia), ICCP, Laser & Photonics Review, Advanced Science, Optics Letters, Optics Express, Applied Optics, Journal of Microscopy, and Optics Communications.

### Student Mentorship

- 2022 – 2025 ■ **PhD Thesis:** "Learned Wide-Angle Imaging with Optical Modeling and Optimization", Haoyu Wei, **The University of Hong Kong**
- 2021 – 2025 ■ **PhD Thesis:** "Manipulation and Characterization of Optical Field with Differentiable Optics", Yiwen Hu, **Zhejiang University**
- 2023 ■ **Master's Thesis:** "Deep Stereo Optics Imaging for High Fidelity Depth Estimation", Yuhui Liu, **The University of Hong Kong**
- 2022 ■ **Bachelor's Thesis:** "Full Vectorial Manipulation of Tightly Focused Optical Field", Haiwei Wang, **Zhejiang University**
- **Bachelor's Thesis:** "Numerical Simulation of Vectorial Field Based on Vectorial Diffraction Theory", Yunpeng Wang, **Changchun University of Science and Technology**

## References

Available on Request