# LIU, XIN

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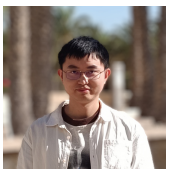
Google Scholar
github.com/LiuX2018
liux2018.github.io



## Research Interests

*Computational Optics*, with a particular focus on *Optical Simulation*, *Light Shaping*, *Computational Imaging*, *Adaptive Optics*, *Far-field Optical Microscopy (Nanoscopy)*, and *Optical Fabrication & Testing*.

## Research Experience

2024/04 – Present
Department of Electrical and Electronic Engineering, **The University of Hong Kong**, Hong Kong SAR, China
*Postdoctoral Fellow*
Advisor: Prof. Yifan Peng @HKU

2024/01 – 2024/03
College of Optical Science and Engineering, **Zhejiang University**, Hangzhou, China
*Research Assistant*
Advisor: Prof. Xiang Hao & Prof. Xu Liu @ZJU

## Education

2018/09 – 2023/12
**Zhejiang University**, Hangzhou, China
*Ph.D.* in Optical Engineering
Advisors: Prof. Xiang Hao & Prof. Xu Liu @ZJU

2022/12 – 2023/04
**The University of Hong Kong**, Hong Kong SAR, China
*Research Postgraduate Visiting Student* in Electrical and Electronic Engineering
Advisors: Prof. Yifan Peng & Prof. Edmund Y. Lam @HKU

2014/09 – 2018/06
**South China University of Technology**, Guangzhou, China
*B.E.* in Optoelectronic Information Science and Engineering

## Representative Publications

([#]Equal contributors)

1. **X. Liu**, Y. Hu, S. Tu, C. Kuang, X. Liu, and X. Hao, "Fast generation of arbitrary optical focus array," *Optics and Lasers in Engineering*, vol. 162, p. 107 405, 2023, **(IF = 3.5)**.
2. H. Wei[#], **X. Liu[#]**, X. Hao, E. Y. Lam, and Y. Peng, "Modeling off-axis diffraction with the least-sampling angular spectrum method," *Optica*, vol. 10, no. 7, pp. 959–962, 2023, **(IF = 8.4), [Monthly Top Downloads of Journal]**.
3. **X. Liu**, S. Tu, C. Kuang, X. Liu, and X. Hao, "Calibration of phase-only liquid-crystal spatial light modulators by diffractogram analysis," *Optics and Lasers in Engineering*, vol. 156, p. 107 056, 2022, **(IF = 3.5)**.
4. **X. Liu[#]**, L. Li[#], X. Liu, X. Hao, and Y. Peng, "Investigating deep optics model representation in affecting resolved all-in-focus image quality and depth estimation fidelity," *Optics Express*, vol. 30, no. 20, pp. 36 973–36 984, 2022, **(IF = 3.2)**.
5. **X. Liu**, Y. Peng, S. Tu, J. Guan, C. Kuang, X. Liu, and X. Hao, "Generation of arbitrary longitudinal polarization vortices by pupil function manipulation," *Advanced Photonics Research*, vol. 2, no. 1, p. 2 000 087, 2021, **(IF = 3.7), [Cover Story]**.

6 **X. Liu**, S. Tu, Y. Xu, H. Song, W. Liu, Q. Liu, C. Kuang, X. Liu, and X. Hao, "Aberrations in structured illumination microscopy: A theoretical analysis," *Frontiers in Physics*, vol. 7, no. 254, 2020, **(IF = 1.9)**.

## Honors & Achievements

2024 **Nomination Award at 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.

**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.

2015 **Third-class award on 3rd Physics Tournament of SCUT**, South China University of Technology.

## Reviewer Service

Optica, Laser & Photonics Review, Advanced Science, Optics Express, Journal of Microscopy, and Optics Communications.

## Conference Presentations & Invited Talks

2024/09 **The 4th International Conference on Computational Imaging**, Xiamen, China
Invited talk "Free-space wave propagation modeling with least-sampling angular spectrum method"

2024/05 **Guest Lecture**, King Abdullah University of Science and Technology, Saudi Arabia
Invited talk "Exploring wave propagation modeling in free space"

## Teaching Experience & Mentorship

2021 – 2026 **Student Mentorship**
Doctoral Thesis: "Manipulation and Characterization of Optical Field with Differentiable Optics", Yiwen Hu, *Zhejiang University*

2023 **Student Mentorship**
Master Thesis: "Deep Stereo Optics Imaging for High Fidelity Depth Estimation", Yuhui Liu, *The University of Hong Kong*

2022 **Student Mentorship**
Undergraduate Thesis: "Full Vectorial Manipulation of Tightly Focused Optical Field", Haiwei Wang, *Zhejiang University*

**Remote Student Mentorship**
Undergraduate Thesis: "Numerical Simulation of Vectorial Field Based on Vectorial Diffraction Theory", Yunpeng Wang, *Changchun University of Science and Technology*

## Granted Patents

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

## Skills

Languages — Good reading, writing and speaking competencies in English and Mandarin Chinese.

Coding — MATLAB, Python, LabVIEW, and LaTeX.