

## Qixuan Min

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## RESEARCH INTERESTS

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Metasurface, Computational Imaging, Optical Computing, Optical Neural Networks, AR/VR Display

## EDUCATION

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**University of Chinese Academy of Sciences, SIOM**, Shanghai, China Sep 2021 — July 2024  
Master of Electronic Information GPA: 3.68/4.00  
Thesis Title: The Study of Quantitative Phase Imaging Based on Polarization-Multiplexed Metasurface  
Thesis Advisor: Prof. Guohai Situ

**Shanghai Maritime University**, Shanghai, China Sep 2017 — July 2021  
Bachelor of Automation(with honors) GPA: 3.26/4.00 Rank(3/69, Top5%)

## PUBLICATIONS

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### Journal paper

- **Min, Q.**, Trapp, J., Fang, T., Hu, R., Wang, F., Zhang, Z., Liu, X., Dai, A., Yang, C., Guo, J. and Situ, G., 2024. Varifocal Metalens for Compact and Accurate Quantitative Phase Imaging. **ACS Photonics**, 2024, doi: 10.1021/acsp Photonics.4c00658.
- Dai, A., Fang, P., Gao, J., **Min, Q.**, Hu, R., Qiu, S., Wu, X., Guo, J. and Situ, G., 2023. Multifunctional Metasurfaces Enabled by Multifold Geometric Phase Interference. **Nano Letters**, 23(11), 5019-5026.
- Hu, R., **Min, Q.**, Liu, X., Dai, A., Guo, J. and Situ, G. 2024. Terahertz programmable metasurface for phase modulation based on free carrier plasma dispersion effect. **Applied Physics Letters**, 124(25), 251703.

### Conference

- **Min, Q.**, Guo, J. and Situ, G. 2024 Compact Quantitative Phase Imaging Based on a Polarization-Dependent Varifocal Metalens. **Optica Digital Holography and Three-Dimensional Imaging. 2024. Italy (Oral Presentation)**

## RESEARCH EXPERIENCE

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**Polarization-dependent varifocal metalens for quantitative phase imaging** Sep 2022 — June 2024

- The aim of this project is to design a highly integrated and high-precision quantitative phase imaging device based on a polarization-dependent varifocal metalens.
- Proposed a compact quantitative phase imaging method using polarization-dependent varifocal metalens.
- Designed and simulated the varifocal metalens.
- Did quantitative phase imaging experiments and wrote the manuscript.
- Made an oral presentation in Optica DH2024.

**Terahertz programmable metasurface** Dec 2021 — Jan 2024

- The goal of this project is to design a high-speed, high-efficiency reconfigurable metasurface based on an MIM structure.
- Did some simulations of the PN junction and analyzed the data.

**Multifold geometric phase metasurfaces based on interference effect** Sep 2021 — Aug 2022

- The aim of this project is to design a complex amplitude modulation geometric phase metasurface using the interference coupling effect between multiple meta-atoms.
- Did some experiments for spin-decoupled metalens imaging.

**Intelligent Chess Gaming Robot** Sep 2018 — Aug 2019

- The aim of this project is to design and build a intelligent game-playing robot that can pick and place pieces on a chessboard and make intelligent decisions based on the state of the game.
- Processed the captured images and programmed control algorithm strategy.
- Designed the PCB and the mechanical structures.

**Texas Instruments National Undergraduate Electronics Design Contest** July 2019 — Sep 2019

- The competition's task is to design and build an electromagnetic cannon within three days that can track a specific object and fire a projectile to hit the target. The score is determined by the accuracy of the hits.
- Designed the circuit for the tracking device.
- Wrote code for object recognition.
- Wrote programs to control the gimbal for tracking objects.

## AWARDS

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**First Price in Texas Instruments Cup Undergraduate Electronics Design Contest** Shanghai, China  
 A nationwide college student competition with high prestige, featuring over 20,000 participants and less than 300 first-place winners, a ratio of 2%. Sep 2019

**Second Price in NXP Semiconductors Cup National Undergraduate Smart Car Contest** Shanghai, China  
 A nationwide college student competition with high prestige, where only a very few teams can advance to the finals and win national awards. Aug 2019

**Third Price in National Undergraduate Engineering Training Integration Ability Competition** Shanghai, China  
 A nationwide college student competition with high prestige, where only a very few teams can advance to the finals and win national awards. May 2019

## SKILLS

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- **Programming:** Python, C, C++
- **Software:** Lumerical, CST, COMSOL, Altium Designer, Solidworks, 3Ds Max, Matlab

## REFERENCES

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### Prof. Guohai Situ

*Full Professor, Aerospace Laser Technology and System Department, Shanghai Institute of Optics and Fine Mechanics, Shanghai, China*

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