Qixuan Min

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RESEARCH INTERESTS

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

EDUCATION

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

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**, in press.
- 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

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

First Price in Texas Instruments National 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

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

REFERENCES

Prof. Guohai Situ
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