Qixuan Min

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RESEARCH INTERESTS

Metasurface, Computational Imaging, Optical Neural Networks, Light-field Camera, AR/VR Display

EDUCATION

University of Chinese Academy of Sciences, SIOM, Shanghai, China — Sep 2021 — July 2024
Master of Science — GPA: 3.7/4.0
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: 3.3/4.0 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** , 11(7), 2797-2804.
- 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.
- 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.
- Zhang, Z., Wang, F., **Min, Q.**, Jin, Y. and Situ, G., 2024. Fourier phase retrieval using physics-enhanced deep learning, **Optics Letters**, under review.
- Zhang, N., Wang, F., **Min, Q.**, Liu, X., Yuan, H., Guo, J. and Situ, G., 2024. Broadband and polarization-independent complex amplitude modulation using a single layer dielectric metasurface, **Advanced Optial Materials**, under review.

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.

- Programmed control algorithm strategy.
- Designed the PCB and the mechanical structures.

Auto-tracing electromagnetic Cannon 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

Entrepreneurial Pioneer Award Hangzhou, China
The award is given to those teachers and students who are brave in entrepreneurship. Nov 2021

Outstanding Freshmen Scholarship Hangzhou, China
The award is given to the outstanding new students of the University of the Chinese Academy of Sciences. Sep 2021

Outstanding Graduates Shanghai, China
The award is given to the most outstanding undergraduate graduates, equivalent to a first-class honors degree. June 2021

First Price in Texas Instruments Cup Undergraduate Electronics Design Contest Shanghai, China
A nationwide undergraduate 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 undergraduate 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 undergraduate 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++, Matlab
- **Software:** Linux, Lumerical, CST, COMSOL, Altium Designer, Soildworks, 3Ds Max, Fusion 360, Git and so on.

REFERENCES

Prof. Guohai Situ
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