

GAOYUN

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Education

HuaZhong University of Science and Technology

Sep 2022 - Jun 2025 expexted

M.S in Physics

- Weighted Average: 87/100 GPA: 3.6/4.0
- Core courses:Advanced Quantum Mechanics,Nonlinear Optics,Ultrafast Optics,Precision Spectroscopy,Thesis Writing

Changchun University of Science and Technology

Sep 2018 - Jun 2022

B.S in Optical Information Science and Technology

- Weighted Average: 89.8/100 GPA: 3.6/4.0
- Core courses:Advanced Mathematics, Linear Algebra, University Physics, Optics, Laser Principle,Film Optics,Photoelectric Detecting Technique, Signal & Systematic Analysis

Research Experience

Reflection Coherent Diffractive Imaging

Sep 2022 - Jun 2024

HuaZhong University of Science and Technology *graduate researcher*

- Used Matlab to simulate light field propagation and diffraction.
- Wrote GS,HIO,ePIE,DR and other iterative recovery algorithms
- Built the reflective coherent diffraction imaging experimental system independently.
- Realized the lensless imaging of the surface and interface structures of the wafer with large transverse field of view
- Designed the equipment to realize coherent diffraction imaging of sub-wavelength spatial resolution, fs temporal resolution and spectral analysis based on original extreme ultraviolet synchrotron radiation source

Tech:Experimental design/Optical path construction/Write algorithms for computation imaging

Coherent Diffractive Imaging For Broadband Light Source

Sep 2022 - Jun 2024

HuaZhong University of Science and Technology *graduate researcher*

- Wrote PIM, mix-state broadband ptychography algorithms.
- Realized multi-modes reconstruction for LED broadband light source in certain bandwidth
- Assisted docs in work of multi-distance lensless imaging with broadband laser sources

Tech:Experimental design/Optical path construction/Multi-mode ptychography algorithms/

Hyperspectral Dimension Reduction

Sep 2018 - Jun 2022

Changchun University of Science and Technology *undergraduate researcher*

- Studied an improved method of non-negative sparse matrix transformation based on maximum likelihood covariance estimation and Frobenius norm to achieve better hyperspectral dimension reduction
- Realized disease region identification for hyperspectral samples of diseased plants obtained by experiment

Tech:Data dimension reduction/Principle of hyperspectral imaging/Classification algorithm writing

Leadership and Teamwork

Changchun University of Science and Technology Optical Alliance (Optica&SPIE&IEEE&COS students chapters)

Sep 2020 - Jun 2021

Co-President

- Worked as the secretary of IEEE Student chapter of Changchun University of Science and Technology
- Organized 10+ activities for hundreds of people, such as International Light Day Activities and Academic Salon
- Exchanged emails with the headquarters regularly. Wrote annual reports.

China Youth Volunteer Service Project

Sep 2019 - Jun 2021

Co-Leader

- Organized optical science popularization activities for primary and secondary school students.
- Popularized science on the social media platform(the account was followed by hundreds of people).
- selected as the national Bronze Award

HuaZhong University of Science and Technology, Physics School

Feb 2023 - Jul 2023

Optics Teaching Assistant

- Prepared course material , homework, exams, practice problems on various optics topics including electromagnetic theory of light,propagation of light,geometrical optics,interference of light,superposition of light waves, etc.
- Held 100+ hours of office hours organizing Q&A sessions and grading scores
- Selected as the Excellent Teaching Assistant

Academic papers/Patent

Academic papers

Sep 2018 - present

- **Gao, Y.**, You, Q., Interfaces and spectrum multiplexing Ptychographic reflection microscopy. **FORCOMING**
- You, Qijun and **Gao, Yun** and Zhang, Fucui and Liao, Qing and Cao, Wei and LU, Peixiang, Multi-Distance Lensless Imaging with Broadband Laser Sources. Available at SSRN: <https://ssrn.com/abstract=4798614> **Under Review**
- You, Q., Meng, L., **Gao, Y.**, Liao, Q., Cao, W., & Lu, P. (2024). Spectral multiplexing based on multi-distance lensless imaging. arxiv preprint arxiv:2405.19618. **received**
- Liu, R., Cao, W., You, Q., **Gao, Y.**, Zhang, F., Liao, Q., & Lu, P. (2023). Broadband ptychographic imaging with an accurately sampled spectrum. Physical Review A, 107(3), 033510.
- Deng, Z., Fu, Y., Zhao, S., **Gao, Y.**, & Cui, J. (2022). Application of Non-Negative Sparse Matrix Transformation in Hyperspectral Analysis. Journal of Applied Spectroscopy, 89(3), 593-601.

Patent

Sep 2018 - present

- A Multi-range lensless Imaging Method for Simultaneous Illumination of Multiple Wavelengths. **under consideration**

Relevant Research Skills

Computer: Matlab, C++, python(basic)

Lab: Zemax, SolidWorks, Keil, FDTD, SPSS, Auto CAD, Labview

Language: Mandarin Chinese(native), English(TOEFL:85)

Developer Tools: GitHub

Additional Experience

Volunteer of conference

Nov.2020

"Advanced photoelectric Field Development Trend and Frontier Technology Forum"

Enterprise Scholarship(only thirteen in whole school)

Oct 2021

2stPrize for National College Students English Competition

Jun 2019

3stPrize for National College Students Photoelectric Design Competition

Oct 2020

References

Wei Cao (Supervisor of M.S. These)

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