

# HAOWEN ZHOU

Website: <https://hwzhou2020.github.io/>

## EDUCATION

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**California Institute of Technology** Pasadena CA, USA  
M.S. / Ph.D. Program in Electrical Engineering July 2021 – Present

- Naren and Vinita Gupta Fellow
- Supervised by Prof. Changhui Yang

**University of Dayton** Dayton OH, USA  
M.S. in Electro-Optics and Photonics Aug 2019 – May 2021

- Dean's Fellow | GPA – 4.0/4.0
- Supervised by Prof. Partha Banerjee

**Huazhong University of Science and Technology** Wuhan, China  
B.E. in Optoelectronic Information Science and Engineering Aug 2015 – June 2019

- National Endeavor Scholarship Award of China | GPA – 3.90/4.00
- Supervised by Prof. Wenxi Liang

## SELECTED AWARDS AND HONORS

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| • Caltech Gupta Sensing to Intelligence (S2I) Fellowship                             | 2021 |
| • Dean's Fellowship of University of Dayton  | 2019 |
| • Outstanding Graduate Award of Huazhong University of Science and Technology        | 2019 |
| • Outstanding Graduate Thesis Award of School of Engineering Sciences                | 2019 |
| • People's Scholarship of Huazhong University of Science and Technology              | 2017 |
| • Scientific Innovation Scholarship of Huazhong University of Science and Technology | 2017 |
| • National Endeavor Scholarship Award of China                                       | 2016 |
| • Freshman Scholarship of School of Engineering Sciences                             | 2016 |

## PUBLICATIONS/ PRE-PRINTS/ ACADEMIC EVENTS

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[Journal papers]

1. (In Press) **H. Zhou**, M. Watson, C. T. Bernadt, S. Lin, C. Lin, J.H. Ritter, A. Wein, S. Mahler, S. Rawal, R. Govindan, C. Yang, and R.J. Cote, "AI-guided histopathology predicts brain metastasis in lung cancer patients," *Journal of Pathology* (2024).
2. **H. Zhou**, B. Y. Feng, H. Guo, S. Lin, M. Liang, C. A. Metzler, C. Yang, "FPM-INR: Fourier ptychographic microscopy image stack reconstruction using implicit neural representations," *Optica* 10, 1679-1687 (2023).
3. C. Shen, S. Rawal, R. Brown, **H. Zhou**, A. Agarwal, M. Watson, R.J. Cote, and C. Yang, "Automatic detection of circulating tumor cells and cancer associated fibroblasts using deep learning," *Sci. Rep.* 13, 5708 (2023).
4. **H. Zhou**, C. Shen, M. Liang, C. Yang, "Analysis of post-reconstruction digital refocusing in Fourier ptychographic microscopy," *Opt. Eng.* 61, 073102 (2022).
5. **H. Zhou**, M.M.R. Hussain, P. P. Banerjee, "A review of the dual-wavelength technique for phase imaging and 3D topography," *Light Adv. Manuf.* 3, 1-21 (2022).
6. **H. Zhou**, H. Guo, and P. P. Banerjee, "Non-recursive transport of intensity phase retrieval with the transport of phase," *Appl. Opt.* 61, B190-B199 (2022).
7. H. Guo, **H. Zhou**, P. P. Banerjee, "Use of structured light in 3D reconstruction of transparent objects," *Appl. Opt.* 61, B214-B324 (2022).

8. **H. Zhou**, E. Stoykova, M. Hussain, and P. P. Banerjee, "Performance analysis of phase retrieval using transport of intensity with digital holography," *Appl. Opt.* 60, A73-A83 (2020).
9. H. Guo, **H. Zhou**, and P. P. Banerjee, "Single-shot digital phase-shifting Moiré patterns for 3D topography," *Appl. Opt.* 60, A84-A92 (2020).
10. **H. Zhou**, X. Sui, L. Cao, and P. P. Banerjee, "Digital correlation of computer-generated holograms for 3D face recognition," *Appl. Opt.* 58, G177-G186 (2019).
11. B. Bordbar, **H. Zhou**, P. P. Banerjee, "3D object recognition through processing of 2D holograms," *Appl. Opt.* 58, G197-G203 (2019).
12. Q. Li, J. Wu, L. Huang, J. Gao, **H. Zhou**, Y. Shi, Q. Pan, G. Zhang, Y. Du, and W. Liang, "Sulfur dioxide gas-sensitive materials based on zeolitic imidazolate framework-derived carbon nanotubes," *J. Mater. Chem. A.* 6, 12115-12124 (2018).

[Conference presentations / proceedings]

1. Fourier ptychographic microscopy image stack reconstruction using implicit neural representation (29 January 2024) SPIE Photonics West
2. (Invited) Improving pathology and life science research by leveraging computational microscopy and machine learning (27 January 2024) on behalf of Professor Changhui Yang, SPIE Photonics West
3. C. Shen, H. Zhou, C. Yang, "Non-interferometric and non-iterative complex wave-field reconstruction based on Kramers-Kronig relations," *Proc. SPIE*, 11970, 1197002 (2022).
4. H. Zhou and P. P. Banerjee, "Transport of intensity phase imaging with error correction using transport of phase equation," *Proc. SPIE* 11709, 117090D (2021).
5. H. Zhou, E. Stoykova, and P.P. Banerjee, "Phase retrieval using transport of intensity with off-axis digital holography for objects with large phase excursions", HF2D.5, Digital Holography and 3D Imaging, OSA (2020).
6. E. Stoykova, H. Zhou, and P.P. Banerjee, "Phase retrieval by transport of intensity in inline digital holography", HF2D.3, Digital Holography and 3D Imaging, OSA (2020).
7. H. Guo, H. Zhou, and P. P. Banerjee, "Single-shot Digital Phase-shifting Moiré Pattern for 3D Metallic Surface Imaging," HF3G.3, Digital Holography and 3D Imaging, OSA (2020).
8. H. Gao, H. Fang, J. Liu, H. Zhou, X. Cheng, S. Ding, J. Luo, S. Li, Z. Dai, and P.P. Banerjee, "A scanning method based on parabolic mirror and galvanometer for holographic contact copying," HTh4H.1, Digital Holography and 3D Imaging, OSA (2020).
9. H. Zhou, R. Hou, B. Bordbar, and P. P. Banerjee, "Effect of hologram windowing on correlation of 3D objects," Th2B.8, Digital Holography and 3D Imaging, OSA (2019).
10. H. Zhou, R. Hou, B. Bordbar, and P. P. Banerjee, "Effect of hologram size on 3D reconstruction using multi-wavelength digital holography," W4B.2, Digital Holography and 3D Imaging, OSA (2019).
11. P. P. Banerjee, U. Abeywickrema, H. Zhou, M. S. Alam, G. Nehmetallah, J. Khoury, L. Cao, "Taking correlation from 2D to 3D: optical methods and performance evaluation," *Proc. SPIE* 10995, 10995-10 (2019).
12. H. Zhou, U. Abeywickrema, B. Bordbar, L. Cao, P. P. Banerjee, "Correlation of holograms for surface characterization for diffuse objects," *Proc. SPIE* 10943, 10943-3 (2019).

## SERVICE AND VOLUNTEER WORK

### Journal Reviewer

- Light: Science and Applications
- Photonics Research
- Optics Letters
- Biomedical Optics Express
- Optics Express
- Applied Optics
- Optics Communication
- Nature Scientific Reports
- Journal of the Optical Society of America A

### President of Society of Photographic Instrumentation Engineering (SPIE) / Optical Society of America (OSA), Student Chapters at University of Dayton

Sept 2020 – Mar 2021

- Organize Power-Haus Seminar Series (Weekly student tech talks)
- Invite speakers globally, and host webinars/Power-Haus series seminars

- Lead a team of five student officers, hold weekly officer meeting and run the student chapter

## TEACHING

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- Caltech EE151 Electromagnetic Engineering (2023 Spring)