

# Luzhe Huang

**E-mail** lzhuang0324@ucla.edu    **Website** porphura.github.io  
**Tel.** (1) 424 402 2604

## EDUCATION

*Sep. 2019 - Now*    **MS/PhD**    ECE Department, University of California, Los Angeles  
 Instructor: Aydogan Ozcan, GPA: 3.96/4.00

*Sep. 2015 - Jun. 2019*    **Bachelor of Engineering (BEng)**    CKC Honors College, Zhejiang University, China  
 Major: Opto-Electronics Information Science and Engineering, Minor: Statistics, GPA: 3.96/4.00.

## EXPERIENCE

*Sep. 2021 - Now*    **HHMI REU Mentor**    UCLA

*Sep. 2019 - Now*    **Graduate Student Researcher**    UCLA

*Feb. 2019 - Jun. 2019*    **Software R&D Engineer**    Autowise.ai

*Jul. 2018 - Aug. 2018*    **Summer Research Intern**    Boston University

*Jul. 2017 - Jul. 2017*    **SENG Summer Camp**    Hong Kong University of Science and Technology

## PUBLICATIONS

### JOURNALS

1. **L. Huang**, H. Chen, et al. Self-supervised learning of hologram reconstruction using physics consistency. *Nat. Mach. Intell.* (2023). <https://doi.org/10.1038/s42256-023-00704-7>
2. H. Chen, **L. Huang**<sup>1</sup>, et al. eFIN: Enhanced Fourier Imager Network for Generalizable Autofocusing and Pixel Super-Resolution in Holographic Imaging. *IEEE JSTQE*, vol. 29, no. 4: Biophotonics, pp. 1-10, July-Aug. 2023;
3. Y. Zhang, **L. Huang**<sup>1</sup>, et al. Virtual Staining of Defocused Autofluorescence Images of Unlabeled Tissue Using Deep Neural Networks. *Intelligent Computing 2022*, 9818965;
4. H. Chen, **L. Huang**<sup>1</sup>, et al. Fourier Imager Network (FIN): A deep neural network for hologram reconstruction with superior external generalization. *Light: Sci. Appl.* 11, 254 (2022);
5. **L. Huang**, X. Yang, et al. Few-shot Transfer Learning for Holographic Image Reconstruction using a Recurrent Neural Network. *APL Photonics* 2022, 7, 070801;
6. X. Yang, **L. Huang**<sup>1</sup>, Y. Luo, et al. Deep-learning-based virtual refocusing of images using an engineered point-spread function. *ACS Photonics* 2021, 8, 7, 2174-2182;
7. **L. Huang**, T. Liu, et al. Holographic image reconstruction with phase recovery and autofocusing using recurrent neural networks. *ACS Photonics* 2021, 8, 6, 1763-1774;
8. **L. Huang**, H. Chen, Y. Luo, et al. Recurrent neural network-based volumetric fluorescence microscopy. *Light Sci. Appl.* 10, 62 (2021);
9. Y. Luo, **L. Huang**<sup>1</sup>, Y. Rivenson, A. Ozcan, Single-shot autofocusing of microscopy images using deep learning. *ACS Photonics*, 2021, 8, 2, 625-638;
10. **L. Huang**, Y. Fu, R. Chen, et al. SNR-adaptive OCT angiography enabled by statistical char-

<sup>1</sup>Co-first author

- acterization of intensity and decorrelation based on multi-variate time series model. *IEEE Trans. Med. Imaging*, vol. 38, no. 11, pp. 2695-2704, Nov. 2019;
11. **L. Huang**, X. Wang, Y. Yuan, S. Gu, Y. Shen, An improved algorithm of NLOS imaging based on Bayesian statistics. *JOSA.A* 36(5), 834-838, 2019;
  12. **L. Huang**, T. Fang, Q. Shuai, Calibration and imaging of a CT system, *Chinese Journal of Engineering Mathematics*. Vol. 34, Supp. 1, 2017;

## CONFERENCES (SELECTED)

1. **L. Huang**, X. Yang, T. Liu, A. Ozcan, "Few-shot generalizable hologram reconstruction model using a recurrent neural network (RNN) (Conference Presentation)," Proc. SPIE PC12204, Emerging Topics in Artificial Intelligence (ETAI) 2022, PC122040H (4 October 2022);
2. **L. Huang**, T. Liu, X. Yang, Y. Luo, Y. Rivenson, and A. Ozcan, "Phase Recovery and Holographic Imaging using Recurrent Neural Networks (RNNs)," in Conference on Lasers and Electro-Optics, Technical Digest Series (Optica Publishing Group, 2022), paper AT1D.5;
3. **L. Huang**, T. Liu, X. Yang, Y. Luo, Y. Rivenson, A. Ozcan, "Holographic image reconstruction with phase recovery and autofocusing using recurrent neural networks," Proc. SPIE 11970, Quantitative Phase Imaging VIII, 119700C (2 March 2022);
4. **L. Huang**, Y. Luo, Y. Rivenson, and A. Ozcan, "Neural network-based single-shot autofocusing of microscopy images," in Conference on Lasers and Electro-Optics (CLEO), OSA Technical Digest (Optica Publishing Group, 2021), paper ATu4L.2.
5. **L. Huang**, Y. Luo, Y. Rivenson, and A. Ozcan, "Volumetric fluorescence microscopy using convolutional recurrent neural networks," in Conference on Lasers and Electro-Optics (CLEO), OSA Technical Digest (Optica Publishing Group, 2021), paper STh2D.3.
6. **L. Huang**, Y. Luo, Y. Rivenson, and A. Ozcan "Deep learning-based single-shot autofocusing of microscopy images", Proc. SPIE 11647, Imaging, Manipulation, and Analysis of Biomolecules, Cells, and Tissues XIX, 116470Y (5 March 2021);

## SERVICES

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- Reviewer for *IEEE Transactions on Medical Imaging*
  - Reviewer for *IEEE Photonics Journal*
  - Reviewer for *Biomedical Optics Express*
  - Reviewer for *Optics Express*
  - Reviewer for *Journal of Optical Society of America A*

## AWARDS

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| <i>Jul. 2023</i> | <b>UCLA Dissertation Year Fellowship</b>   |
| <i>Sep. 2022</i> | <b>Amazon Doctoral Student Fellowship</b>  |
| <i>Sep. 2019</i> | <b>UCLA ECE Department Fellowship</b>  |
| <i>Oct. 2018</i> | <b>Zhejiang University Special Scholarship (Supreme award for Undergraduates)</b>                      |
| <i>Nov. 2017</i> | <b>Zhejiang University Chu Kochen College Innovation Scholarship</b>                                   |
| <i>Oct. 2017</i> | <b>National Scholarship</b>  |
| <i>Sep. 2017</i> | <b>MATLAB Innovation Prize (Special Prize) in China Undergraduate Mathematical Contest in Modeling</b> |
| <i>Oct. 2016</i> | <b>National Scholarship</b>  |