

# Jimin Wu

Department of Bioengineering  
Rice University, Houston, Texas  
E-mail: jimin.wu@rice.edu      Mobile: 832-763-5398

## RESEARCH INTERESTS

My research interests involve the integration of **computational imaging, microscopy, neuroengineering, medical imaging** and **machine learning**. My current research focuses on leveraging AI-enabled optics optimization and imaging algorithms to overcome the challenges of traditional lens-based systems, and develop ultra-compact computational microscopes with superior imaging performance, enabling large-scale neural signal recording and enhanced medical imaging capabilities.

## EDUCATION

<b>Ph.D. Candidate, Rice University,</b> Houston, TX, USA	Expected 2025
Bioengineering, George R. Brown School of Engineering	
Advisor: Jacob T. Robinson, PhD	
Co-Advisor: Ashok Veeraraghavan, PhD	
<b>M.S., Johns Hopkins University,</b> Baltimore, MD, USA	2019
Electrical and Computer Engineering, Whiting School of Engineering	
Advisor: Xingde Li, PhD	
<b>B.S., Wuhan University,</b> Wuhan, Hubei, China	2017
Optical Engineering, School of Electronic Information	

## PUBLICATIONS

\* Equal contribution

- **Jimin Wu\***, Yuzhi Chen\*, Ashok Veeraraghavan, Eyal Seidemann, Jacob T. Robinson, 'Mesoscopic calcium imaging in a head-unrestrained non-human male primate using a lensless microscope', ***Nature Communications***, 1-15, 1271 (2024).
- **Jimin Wu**, Vivek Boominathan, Ashok Veeraraghavan, Jacob T. Robinson, 'Real-time, deep-learning aided lensless microscope', ***Biomedical Optics Express*** 8, 4037-4051 (2023).
- **Jimin Wu**, Yuzhi Chen, Ashok Veeraraghavan, Eyal Seidemann, and Jacob T. Robinson "Functional imaging of non-human primate visual cortex using a miniaturized lensless microscope", Proc. SPIE 12365, Neural Imaging and Sensing 2023, 1236504, 2023
- Jesse K. Adams\*, Dong Yan\*, **Jimin Wu\***, Vivek Boominathan\*, Sibor Gao, Alex V. Rodriguez, Soonyoung Kim, Jennifer Carns, Rebecca Richards-Kortum, Caleb Kemere, Ashok Veeraraghavan, Jacob T. Robinson, 'In vivo lensless microscopy via a phase mask generating diffraction patterns with high-contrast contours', ***Nature Biomedical Engineering***, 1-12 (2022)

- **Jimin Wu**, Dong Yan, Vivek Boominathan, Jesse K. Adams, Ashok Veeraraghavan, Jacob T. Robinson, 'Bio-FlatScope: a flat, lensless microscope for fluorescence imaging', Biophotonics Congress 2021, OSA Technical Digest (Optical Society of America, 2021), paper BTh2B. 5, 2021
- Dawei Li\*, **Jimin Wu**\*, Yufan He, Xinwen Yao, Defu Chen, Hyeon-Cheol Park, Kaiyan Li, Wu Yuan, Jerry L. Prince, Xingde Li, 'Parallel deep networks for endoscopic OCT image segmentation', *Biomedical Optics Express* 10, 1126-1135 (2019)
- Jiangfan Liu, **Jimin Wu**, Yun Fang, Xiaoli Xi, 'Factorisation-splitting WLP-FDTD method of wave propagation in dispersive materials', *IET Microwaves, Antennas & Propagation* 15, 1740-1746 (2016)
- Yun Fang, Xiaoli Xi, **Jimin Wu**, Jiangfan Liu, Yurong Pu, 'A JE collocated WLP-FDTD model of wave propagation in isotropic cold plasma', *IEEE Transactions on Microwave Theory and Techniques* 7, 1957-1965 (2016)
- **Jimin Wu**, Xinyue Wang, Yuwei Xie, Jiangfan Liu, 'Ionospheric time-delay of satellite signal propagation calculation based on FDTD method', IEEE Conference on Electromagnetic Field Computation (CEFC), 2016

## TALKS

- 'Bio-FlatScopeNHP: a Miniaturized Lensless Microscope for Mesoscopic Calcium Imaging in Head-Unrestrained Non-Human Primates', *invited talk*, 2024 Optica Biophotonics Congress: Biomedical Optics (April 2024)
- 'Functional imaging of non-human primate visual cortex using a miniaturized lensless microscope', 2023 SPIE Photonics West, San Francisco (January 2023)
- 'Functional imaging of non-human primate visual cortex using a miniaturized lensless microscope', 2022 Rice Neuroengineering Symposium, Houston (May 2022)
- 'Bio-FlatScope: a flat, lensless microscope for fluorescence imaging', OSA Biophotonics congress: Optics and the Brain, BTh2B. 5 (April 2021)
- 'Segmentation of endoscopic OCT images using parallelly trained convolutional neural networks', 2019 SPIE Photonics West, San Francisco (February 2019)
- 'Ionospheric Time-Delay of Satellite Signal Propagation Calculation Based on FDTD Method', 17th Biennial IEEE Conference on Electromagnetic Field Computation, Miami (November 2016)

## AWARDS

- SPIE Optics and Photonics Education Scholarship 2023
- School of Electronic Information Scholarship, Wuhan University. 2014, 2015, 2016

## TEACHING EXPERIENCE

Teaching Assistant	Image Processing & Analysis, Johns Hopkins University	Fall 2018
Teaching Assistant	Biomedical Instrumentation Lab, Rice University	Fall 2020, 2021

<b>Teaching Assistant</b>	Thermodynamics, Rice University	Spring 2021
<b>Guest Lecture</b>	Intro to Neuroengineering, Rice University	Fall 2023

### **PROFESSIONAL SERVICE**

<b>Reviewer</b>	Nature Publishing: Scientific Reports Springer: Signal, Image and Video Processing Optica: Optics Express, Applied Optics World Scientific Publishing: Journal of Innovative Optical Health Sciences PLOS: PLOS ONE
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