Jimin Wu

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RESEARCH INTERESTS

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

EDUCATION

Ph.D. Candidate, Rice University, Houston, TX, USA — May 2025 (Expected)
Bioengineering, George R. Brown School of Engineering
Advisors: Jacob T. Robinson, PhD and Ashok Veeraraghavan, PhD

M.S., Johns Hopkins University, Baltimore, MD, USA — 2019
Electrical and Computer Engineering, Whiting School of Engineering
Advisor: Xingde Li, PhD

B.E., Wuhan University, Wuhan, Hubei, China — 2017
Optical Engineering, School of Electronic Information

PUBLICATIONS

* Equal contribution

- **Jimin Wu***, Huayu Hou*, Vivek Boominathan, Jinyun Liu, Tomasz S. Tkaczyk, Jacob T. Robinson, Ashok Veeraraghavan, Rebecca Richards-Kortum, 'Systematically optimized endomicroscope with large field-of-view and extended depth-of-field for in vivo cancer detection', ***In preparation*** (2024)
- **Jimin Wu***, Yuzhi Chen*, Ashok Veeraraghavan, Eyal Seidemann, Jacob T. Robinson, 'Mesoscopic calcium imaging in a head-unrestrained male non-human 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*, Sibo 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, 617-628 (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, 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

CONFERENCES & INVITED TALKS

Talks:

- Miniaturized Lensless Microscope for Mesoscopic Calcium Imaging in Head-Unrestrained Non-Human Primates
  - **Invited talk**, 33rd CVS Symposium, Rochester (August 2024)
  - **Invited talk**, 2024 Optica Biophotonics Congress: Biomedical Optics, Fort Lauderdale (April 2024)
- Functional imaging of non-human primate visual cortex using a miniaturized lensless microscope
  - 2023 SPIE Photonics West, San Francisco (January 2023)
  - 2022 Rice Neuroengineering Symposium, Houston (May 2022)
- Bio-FlatScope: a flat, lensless microscope for fluorescence imaging
  - OSA Biophotonics congress: Optics and the Brain, Virtual (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)

Posters:

- Miniaturized Lensless Microscope for Mesoscopic Calcium Imaging in Head-Unrestrained Non-Human Primates
  - 10th Annual BRAIN Initiative Investigator Meeting
  - 2024 Janelia Computational Optics Conference
  - Harrington Symposium on Optical Methods in Quantitative Bio-imaging: Concept to Application
  - 2024 Society for Neuroscience (SFN) Annual Meeting
- In Vivo Calcium Imaging with a Flat, Lensless Microscope
  - 7th Annual BRAIN Initiative Investigator Meeting

- SID - Bio-FlatScope: a Flat, Lensless Imaging Hardware and Software Solution for Calcium Imaging - 7th Annual BRAIN Initiative Investigator Meeting

AWARDS

- Rising Star in EECS, MIT 2024
- Rice Future Faculty Fellow 2024
- 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
	Biomedical Instrumentation Lab, Rice University	Fall 2020, 2021
	Thermodynamics, Rice University	Spring 2021
Guest Lecture	Intro to Neuroengineering, Rice University	Fall 2023

PROFESSIONAL SERVICE

Reviewer	Nature Publishing: Scientific Reports
	Optica: Optics Express, Applied Optics
	World Scientific Poulishing: Journal of Innovative Optical Health Sciences
	PLOS: PLOS ONE