

Yongli He

E-mail: yonglihe@umich.edu

Website: <https://yonglihe23.github.io/>

EDUCATION

- University of Michigan**, Ann Arbor, MI In Progress
Ph.D. in progress, Applied Physics
M.Sc. Electrical and Computer Engineering May 2025
GPA: 4.00/4.00
- Huazhong University of Science and Technology (HUST)**, Wuhan, China Sept.2018 - June 2022
B.Sc., Physics (*with honor*)
GPA: 3.97/4.00 (rank: 2/167)

RESEARCH EXPERIENCE

- Functional MRI Lab**, Univ. of Michigan Dec. 2022 - Present
Graduate Student Research Assistant Supervisors: Jon-Fredrik Nielsen, Ph.D., Doug Noll, Ph.D.
• **Multidimensional MRI RF Pulse Design**
Developed autodifferentiation-based RF pulse design tool for spatially-selective excitation in steady-state sequence
• **Advanced fMRI image acquisition/reconstruction**
Developing new image acquisition scheme/reconstruction framework for more reliable multi-echo fMRI.
- Wuhan National Lab for Optoelectronics**, HUST Mar. 2020 - Apr. 2022
Undergraduate Research Assistant Supervisor: Jiang Tang, Ph.D., Boxiang Song, Ph.D.
• **Quantum Dot Infrared Photodetector Design Based on FDTD Simulation**
• **Perovskite-based X-ray Photodetector Design based on Monte Carlo Simulation**
- Undergraduate Thesis Research** Aug. 2021 - May 2022
Research Assistant Supervisor: Xuebin Bian, Ph.D.
• **Applications of Parallel Computing in Ultrafast Optics**

JOURNAL PUBLICATIONS

- [J1] **Y. He**, B. Song, J. Tang. "Optical metalenses: fundamentals, dispersion manipulation, and applications.", *Front. Optoelectron.*, 15, 24 (2022). DOI.

CONFERENCE PROCEEDINGS AND ABSTRACTS

- [C3] **Y. He**, L. Hernandez-Garcia, D.C. Noll, J.-F. Nielsen. "Investigating the Impact of Spatially Selective Signal Suppression on BOLD fMRI Reliability" *International Society for Magnetic Resonance in Medicine Annual Meeting*, 2025. (digital poster).
- [C2] **Y. He**, R. Fung, J.-F. Nielsen. "High-Accuracy Ultra-short Inner-Volume Saturation Pulse for 3D Steady-State Imaging." *International Society for Magnetic Resonance in Medicine Annual Meeting*, 2024. (digital poster).
- [C1] **Y. He**, P. Liu, L. Gao, B. Song, J. Tang. "Efficient Colloidal Quantum Dot Short-infrared Photodetectors with Coupled Metasurfaces." *International Photonics and Optoelectronics Meetings*, 2022. (Poster).

TECHICAL EXPERIENCE AND SKILLS

MRI Image Reconstruction

Model-based image reconstruction; non-Cartesian sampling (NUFFT); regularized reconstruction (TV, l1-wavelet, tikhonov, etc); spatiotemporal modeling for dynamic imaging.

MRI Pulse Sequence

Development platform: Pulseseq (MATLAB)

Sequence types: GRE, SE/FSE

Sampling Scheme: 3D/SMS-EPI, Stack-of-spiral

Software Development

Programming Language: MATLAB, Python, Julia, LaTeX, Fortran, C++

IDE/Package management: VS Code, Conda, PiP

Version control: Git/Github

HONORS AND AWARDS

National Scholarship

2020

Department of Education, China

0.2% of the class nationwide

Outstanding Undergraduat Award

2020

Huazhong Univ. of Sci. and Tech.

1.5% of the class in the university

First Prize of The National College Student Mathematics Competitions

2019

Chinese Mathematical Society