Yongli He

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EDUCATION

University of Michigan, Ann Arbor, MI — In Progress
Ph.D. in progress, Applied Physics
M.Sc. Electrical and Computer Engineering — May 2025

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.*

- **Multidimensinoal 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); spaiotemporal modeling for dynamic imaging.

MRI Pulse Sequence
Development platform: Pulseq (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