

# Xiaorui Peng

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## Education

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### University of Michigan

PhD Candidate in Biomedical Engineering

Ann Arbor, MI, USA

August 2021-Present

### Duke University

Master's Student in Biomedical Engineering

Durham, NC, USA

January 2020-May 2021

### Beijing Institute of Technology

Bachelor of Science, Electronic Science & Technology

Beijing, China

September 2015-July 2019

## Publication

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1. Grigorios Karageorgos, Jianwei Qiu, **Xiaorui Peng**, Zhaoyuan Yang, Soumya Ghose, Aaron Dentinger, Zhanpeng Xu, Janggun Jo, Siddarth Ragupathi, Guan Xu, Nada Abdulaziz, Girish Gandikota, Xueding Wang, and David Mills. "Automated deep learning-based finger joint segmentation in 3-D ultrasound images with limited dataset. " Ultrasonics. (Under Review)
2. **Xiaorui Peng**, Aaron Dentinger, Shivangi Kewalramani, Zhanpeng Xu, Steven Gray, Soumya Ghose, Yew Teck Tan, Zhaoyuan Yang, Janggun Jo, David Chamberland, Guan Xu, Nada Abdulaziz, Girish Gandikota, David Mills, and Xueding Wang. "An automatic 3D ultrasound and photoacoustic combined imaging system for human inflammatory arthritis." IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control (2023).
3. **Xiaorui Peng**, Zhanpeng Xu, Aaron Dentinger, Shivangi Kewalramani, Janggun Jo, Guan Xu, David Chamberland, Nada Abdulaziz, Girish Gandikota, David Mills, and Xueding Wang. "Longitudinal volumetric assessment of inflammatory arthritis via photoacoustic imaging and Doppler ultrasound imaging." Photoacoustics (2023): 100514.
4. Taboada, Carlos, Jesse Delia, Maomao Chen, Chenshuo Ma, **Xiaorui Peng**, Xiaoyi Zhu, Laiming Jiang et al. "Glassfrogs conceal blood in their liver to maintain transparency." Science 378, no. 6626 (2022): 1315-1320.
5. Tingyang Duan<sup>1</sup>, **Xiaorui Peng**<sup>1</sup> (co-first author), Maomao Chen, Dong Zhang, Fei Gao, and Junjie Yao. "Detection of weak optical absorption by optical-resolution photoacoustic microscopy." Photoacoustics 25 (2022): 100335.
6. Zhu, Xiaoyi, Qiang Huang, Anthony DiSpirito, Tri Vu, Qiangzhou Rong, **Xiaorui Peng**, Huaxin Sheng et al. "Real-time whole-brain imaging of hemodynamics and oxygenation at micro-vessel resolution with ultrafast wide-field photoacoustic microscopy." Light: Science & Applications 11, no. 1 (2022): 1-15.
7. Wang, Peixuan, **Xiaorui Peng**, Jiayu Chen, and Jiacheng Chen. "Highly Maneuverable Ground Reconnaissance Robot Based on Machine Learning." In 2018 3rd International Conference on Robotics and Automation Engineering (ICRAE), IEEE (2018): 102-106.

## Conference Presentation

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1. **Xiaorui Peng**, Grigorios Karageorgos, Jianwei Qiu, Soumya Ghose, Zhanpeng Xu, Zhaoyuan Yang, Aaron Dentinger, Siddarth Ragupathi, Janggun Jo, Nada Abdulaziz, Girish Gandikota, Guan Xu, David Mills, and Xueding Wang. "Automatic photoacoustic/ultrasound Doppler imaging of human hand rheumatoid arthritis: a longitudinal study." Photons Plus Ultrasound: Imaging and Sensing 2024. SPIE, 2024. (Oral Presentation)
2. **Xiaorui Peng**, Laura Johnson, Linyu Ni, Peter Higgins, Xueding Wang, Guan Xu. "Characterizing muscular hypertrophy in intestinal strictures using spectroscopic photoacoustic imaging." Photons Plus Ultrasound: Imaging and Sensing 2024. SPIE, 2024. (Oral Presentation)

3. Yaocai Huang, **Xiaorui Peng**, Laura Johnson, Linyu Ni, Peter Higgins, Xueding Wang, Guan Xu. "A colonoscope-compatible photoacoustic and ultrasonic imaging catheter: initial clinical study in human subjects." Photons Plus Ultrasound: Imaging and Sensing 2024. SPIE, 2024. (Oral Presentation)
4. **Xiaorui Peng**, Zhanpeng Xu, Aaron Dentinger, Shivangi Kewalramani, Janggun Jo, Guan Xu, David Chamberland, Nada Abdulaziz, Girish Gandikota, David Mills, and Xueding Wang. "Longitudinal study of rheumatoid arthritis development in rodent model by photoacoustic imaging and Doppler ultrasound." Photons Plus Ultrasound: Imaging and Sensing 2023. SPIE, 2023. (Oral Presentation)
5. **Xiaorui Peng**, Aaron Dentinger, Shivangi Kewalramani, Zhanpeng Xu, Steven Gray, Soumya Ghose, Yew Teck Tan, Zhaoyuan Yang, Janggun Jo, David Chamberland, Guan Xu, Nada Abdulaziz, Girish Gandikota, David Mills, and Xueding Wang. "3D automatic imaging system of human hand rheumatoid arthritis." Photons Plus Ultrasound: Imaging and Sensing 2023. SPIE, 2023. (Poster Presentation)
6. **Xiaorui Peng**, Laura Johnson, Linyu Ni, Peter Higgins, Xueding Wang and Guan Xu. "Distinguishing muscle hypertrophy in intestinal strictures: a feasibility study." Photons Plus Ultrasound: Imaging and Sensing 2023. SPIE, 2023. (Poster Presentation)

## **Work Experience**

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### **Multivariable Calculus (MATH 212)**

**Durham, NC**

*Teaching Assistant*

May 2020-June 2020

- Graded homework assignments with precision and attention to detail, ensuring accuracy in assessment.
- Conducted regular office hours to provide comprehensive support and assist students in clarifying complex concepts.

### **AInnovation Technology Co. Ltd**

**Chongqing, China**

*Research Intern in Algorithm Position*

August 2019-December 2019

- Filtered, collated and labelled training data to improve algorithm training.
- Used Python to write script to process training image, analyze data, train network, analyze results, and complete machine learning application project.
- Completed Barcodes Detector and Decoder Project utilizing Focal Loss for Dense Object Detection algorithm and Zxing Barcode Scanning Library.

## **Skills**

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- Proficient in Matlab, C/C++, Python, Verilog HDL and Assembly language
- Others: Latex, VolView, SolidWorks, GraphPad Prism, Amira Avizo

## **Honors & Awards**

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Professional development grant

2024, Rackham Student Research Grant (\$3000), University of Michigan

2023, BME Symposium Poster Contest Finalist, University of Michigan

2022, 2023, Rackham Conference Travel Grant (twice), University of Michigan

2019, Distinguished Undergraduate Thesis, Beijing Institute of Technology

2016, 2018, Second Class Academic Scholarship (twice), Beijing Institute of Technology

2016, 2018, Advancement Scholarship (twice), Beijing Institute of Technology

## **Services & Professional Developments**

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2024, GradSWE Professional Development officer, University of Michigan

2024, GradSWE Activities officer, University of Michigan

2024, DEI Student Advisory Board Member, OCCE, University of Michigan

2024, Preparing Future Faculty Certificate, University of Michigan

2024, Intercultural Leadership Certificate, University of Michigan

2024, Richard and Eleanor Towner Prize, Reviewer

2024, Recognizing Excellence in Bioengineering Academic Research (RE-BAR) Symposium

2017, Sri Lanka Elephant Conservation Volunteer Program

2017, Sri Lanka Preschool Volunteer Program

### **Proposal Writing**

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Improving Imaging Quality in Inflammatory Arthritis