Youshen Xiao

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Education

Electrical Engineering — ***Master of Science*** Sep 2023 - Present
School of Information Science and Technology GPA: 3.88/4.00
ShanghaiTech University, Shanghai, China

Biomedical Engineering — ***Bachelor of Science*** Sep 2019 - Jun 2023
School of Health Science and Engineering GPA: 3.95/4.50
University of Shanghai for Science and Technology, Shanghai, China

Research Experience

Limited-View Photoacoustic Tomography Imaging Reconstruction — May 2024 - Present

- In this study, researcher propose the use of implicit neural representation techniques to investigate sparse-view reconstruction in photoacoustic microscopy. The goal is to achieve high-quality imaging reconstruction and improve imaging efficiency without the need for extensive data training.

Sparse-view reconstruction for photoacoustic microscopy — Jan 2024 - Present

- In the context of photoacoustic imaging, an unsupervised neural representation method is employed to address the challenges of sparse-view and limited-view imaging. The primary focus of this study involves the matrix formulation of the forward model (wave equation) using the S-wave, which significantly enhances the method in terms of velocity. The feasibility of the approach is validated through phantom experiments, followed by experiments using acquired photoacoustic signal data from pencil lead and finger cross-sections. Finally, a quantitative comparison is conducted with commonly used delay-and-sum algorithms and iterative methods.

Handheld Dual-Angle Photoacoustic Detection of Melanocytic Nevi — Oct 2023 - Dec 2023

- In the context of photoacoustic imaging, an unsupervised neural representation method is employed to address the challenges of sparse-view and limited-view imaging. The primary focus of this study involves the matrix formulation of the forward model (wave equation) using the S-wave, which significantly enhances the method in terms of velocity. The feasibility of the approach is validated through phantom experiments, followed by experiments using acquired photoacoustic signal data from pencil lead and finger cross-sections. Finally, a quantitative comparison is conducted with commonly used delay-and-sum algorithms and iterative methods.

Publications

- Ruina Chen, Xuelian Gu, Youshen Xiao, "Evaluate the impact of different fixation parameters of intramedullary nail on femoral stability after internal fixation in adolescents' leg length discrepancy by finite element analysis", Journal of Biomedical Engineering Research,2023,1672-6278.
- Youshen Xiao, Ruina Chen, Xuelian Gu, "A research on the impact of intramedullary nail parameters on pediatric femoral shaft fractures based on finite element simulation", Beijing Biomedical Engineering,2024,43(03):221-228.
- Youshen Xiao, Bowei Yao, Yuting Shen, Xiran Cai, Fei Gao, "Unsupervised Neural Representation for Limited-View Photoacoustic Imaging Reconstruction", 2024 IEEE Ultrasonics, Ferroelectrics, and Frequency Control Joint Symposium(IUS).

Skills

- **Programming Language:** Python, Matlab, C++,C
- **Tools Framework:** Slicer, LaTeX, Pytorch, Jax
- **Language:** Mandarin (Native), English (Fluent)