Yuxin Zhang

Ph.D. Candidate

1997-09-24 | LS2N, Centrale Nantes | France | Google Scholar
yuxin.zhang@ls2n.fr | Yuxin-Zhang-Jasmine | univ-nantes.fr/zhang-y-7

I specialize in Biomedical Ultrasound imaging, backed by a solid foundation in mathematics and ultrasound theory. I hold a firm belief in the promising future of digital healthcare!

Education

2024.11 2021.09	**LS2N, Centrale Nantes, France** Ph.D. Candidate • Medical Ultrasound Image Reconstruction with Deep Learning
2021.06 2019.09	**Centrale Nantes, France** 2^{nd} Year Master • Signal and Image Processing 1^{nd} Year Master • Industrial Engineering
2019.06 2015.09	**Harbin Institute of Technology, China** Bachelor's Degree • Civil Engineering

Skills & Languages

US Tools	Field-II, K-Wave, MUST, Aria
AI Tools	Pytorch, Tensorflow
Coding	Python, MATLAB
OS	Linux
Other Tools	Git, Conda, HPC, Latex
Languages	English B2 (work), Chinese (native), French B2 (DELF Certificate)

Projects

(W)DRUS (In Proceeding) : Obtaining high-quality reconstructed ultrasound images by solving an inverse problem using Denoising Diffusion Restoration Models (DDRM).
Innovative point: Using a neural network to represent the prior knowledge and suit different physical models.
Presented at the Deep Generative Models Workshop of MICCAI 2023, (Code Link))

DRUSvar (Arxiv1, Arxiv2) : Ultrasound image despeckling by taking the variance of multiple DRUS samples.
Innovative point: Given the nature of multiplicative noise inherent to ultrasound, we proposed a model to characterize the DRUS' stochasticity and showed the interest of DRUSvar as an echogenicity map estimator.
Experiments were conducted on synthetic, in-vitro, and in-vivo data.
Submitted to the 32nd European Signal Processing Conference (EUSIPCO 2024).

pwus-inr (ongoing) : Focusing on multi-angle planar wave 3D ultrasound imaging, optimizing the architecture combining implicit neural networks with ultrasound physics models.

regADMIRE : Utilizing hyperbolic regularization to optimize the decluttering performance of ADMIRE (on RF data).

DeepUSABLE : Enhancing a beamforming network by incorporating multiple regularization terms into its loss function.

Presentations

2024.03	Colloque Français d'Intelligence Artificielle en Imagerie Biomédicale (IABM): Poster and Photos
2023.10	Deep Generative Models Workshop (DGM4MICCAI): Slides
2023.06	Ecole doctorale Sciences de l'Ingénierie et des Systèmes Seminar (ED_SIS_seminar): Slides and Video
2023.03	Interdisciplinary Academic Sharing on Artificial Intelligence (AiBy4_DAY): Poster and Slides

Awards & Certifications

- Outstanding Winner in the Mathematical Contest in Modeling (MCM 2018) (Certificate) ($< 1\%$)
- First Prize in the Chinese Mathematics Competitions (CMC 2017) (Certificate) ($< 8\%$)
- First Prize in the Undergraduate Training Progress for Innovative Entrepreneurship (2018) (Certificate)
- Shenyang Eurasia Elite Mechanics Special Scholarship (Certificate)
- TensorFlow Developer Certification
- Completion Certification in AI Deep Learning Specialization

Other Activities

2022.06	Gretsi Signal and Image Processing Summer School (Nice, France): (Website), (Certificate)
2022.07	Deep Learning for Medical Imaging Summer School (Montreal, Canada): (Website), (Certificate)
2022.10	IEEE International Ultrasonics Symposium (IUS) (Venice, Italy): (Website)