

IEEE JOURNAL OF BIOMEDICAL AND HEALTH INFORMATICS

J-BHI Special Issue on

“Deep Learning in Ultrasound Imaging”

Among different imaging modalities, ultrasound is the most widespread modality for visualizing human tissue, because of its advantages compared to others: cheap, harmless (no ionizing radiations), allowing real-time feedback, convenient to operate, and well established technology present in all place. Also because of these benefits, tons of medical images are being generated from ultrasound devices. On the other hand, ultrasound images suffer from the disadvantage of being user dependent and noisy which makes the interpretation of US images is sometimes difficult. In the recent years, algorithms in medical imaging have been significantly improved thanks to deep learning (including convolutional neural networks, recurrent neural networks, autoencoders, generative adversarial networks, and so on). In ultrasound imaging, to alleviate the difficulty of processing ultrasound images/data, deep learning techniques are gradually applied in various ultrasound data (such as B-mode ultrasound, Doppler ultrasound, contrast-enhanced ultrasound) to improve imaging quality, tissue characterization, device localization, to name a few, for better diagnosis and therapy.

This special issue seeks to present and highlight the latest development on applying advanced deep learning techniques in ultrasound imaging.

Topics include but are not limited to:

- Classification of lesions/tissue in ultrasound
- Computer-aided detection in ultrasound
- Disease classification in ultrasound
- Image registration or fusion with ultrasound
- Segmentation in ultrasound
- Denoising or super-resolution in ultrasound
- Imaging algorithm
- Quality control in ultrasound
- Ultrasound-guided interventions

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