

Special Issue

MRI Techniques for Disease Detection

Message from the Guest Editor

Magnetic Resonance Imaging (MRI) remains a gold standard for non-invasive disease detection, offering unparalleled soft tissue contrast, multi-parametric acquisition, and dynamic imaging capabilities. This Special Issue of *Bioengineering* aims to highlight recent breakthroughs in MRI methodologies that significantly improve diagnostic sensitivity, specificity, and reproducibility across a wide range of clinical applications. The focus is twofold: advances in MRI physics and acquisition strategies (e.g., multi-shell diffusion MRI, MR fingerprinting, compressed sensing, and ultrafast sequences), and the rapidly growing integration of artificial intelligence (AI) across the imaging pipeline. Deep learning approaches, particularly convolutional neural networks (CNNs), generative adversarial networks (GANs), and transformer-based architectures, are now widely employed to accelerate acquisition (e.g., through AI-accelerated reconstruction), denoising, segmentation, anomaly detection, and radiomics analysis.

Guest Editor

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