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# AI-MEDX: An AI Based Framework for Medical Image Conversion

**Rabiya A[1], Nisha A[2], Harikrishnan S R[3]**
Student, MCA, CHMM College for Advanced Studies, Trivandrum, India[1]
Associate Professor, MCA, CHMM College for Advanced Studies, Trivandrum, India[2,3]

**Abstract:** *Medical image synthesis has gained significant attention in recent years, particularly for converting MRI (Magnetic Resonance Imaging) scans to CT (Computed Tomography) images and vice versa. This transformation is valuable for radiation therapy planning, multi-modal image analysis, and reducing the need for additional imaging. In this study, we propose a deep generative AI model based approach using a Cycle-Consistent Generative Adversarial Network (CycleGAN) to synthesize CT images from MRI scans and MRI images from CT scans without requiring paired datasets. The CycleGAN model consists of two generator-discriminator pairs that learn the bidirectional mapping between MRI and CT images while maintaining structural consistency. The adversarial and cycle-consistency losses ensure that the generated images are both realistic and anatomically accurate. Experimental results demonstrate that our approach effectively captures the structural details of CT images from MRI scans and MRI images from CT scans, offering a promising solution for cross-modal medical image translation. This method has the potential to improve diagnostic accuracy, treatment planning, and overall efficiency in clinical workflows*

**Keywords**: Cycle GAN, Machine learning, Deep learning, Pytorch, CNN.



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