Abstract

Medical image data generally need a huge amount of resources for storage and transmission. In recent years, due to the extensive popularity of medical imaging applications in healthcare settings and the increased interest in telemedicine technologies, it is important to minimize both storage and transmission bandwidth necessities required for archival and communication of related data, preferably by employing compression techniques. The security of the compressed image has also become an essential part in medical image analysis. This research focuses on providing efficient compression of the DICOM images with better security and authentication. The DICOM images are encrypted using Improved RSA Variant for better overall performance. This approach uses efficient fractional Fourier Transform and Block based Pass-Parallel SPIHT for compressing the DICOM images. The performance of the proposed approach is compared with the existing approaches and is observed to provide better PSNR and lower MSR values.

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Improved RSA Encryption based Medical Image Compression using Fractional Fourier Transform and Modified SPIHT Encoding Scheme


Index Terms

Computer Science  Signal Processing

Keywords

DICOM  Block based Pass-Parallel SPIHT  Fractional Fourier Transform  Magnetic Resonance Imaging (MRI).