Abstract

Medical image security can be enhanced using the reversible watermarking technique, it allows us to embed the relevant information with the image, which provides confidentiality, integrity and authentication by embedding RSA encrypted digital signature with the image. Protection of Medical Image content is very much important for tele-diagnosis and tele-surgery. Our work proposes a novel algorithms AHF (Additive Hash Function) and RSA for the production of DS (Digital Signature) to achieve high confidentiality and Authentication. An image is compressed using JPEG2000 (DWT) algorithm and EPR (Electronic Patient Record) is embedded in RONI (Region of Non Interest) of compressed image using Lossless Watermarking Technique then shared through the open network. The PSNR (peak Signal to Noise ratio) value is up to 72dBS for 512×512 US(Ultrasonic) images. Increase in Authentication can be achieved when medical expert’s access secured medical images from the web servers using Kerberos technique.

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Index Terms

Computer Science

Security

Keywords

Lossless Watermarking; Medical Image Security; medical Image Compression; Authentication and Confidentiality; JPEG2000 Compression; Kerberos; AHF; RSA