Abstract

A fragile watermarking system is designed for the authentication of medical images. The proposed system authenticates the computed tomography (CT) scan medical images of the effected organs against different distortions. The system enhances the embedding capacity of a CT scan image by isolating the region of interest (ROI) based on higher gray values which need to be unaffected for medical diagnosis and hide character watermark only in region of non interest (RONI) and border areas, thus not compromising the diagnostic value of medical imaging. The method utilizes the spatial domain overlapping and least significant bit (LSB) replacement method (in case of overflow or no data matched) for embedding the watermark. Experimental results reveal that the proposed system detects both legitimate and illegitimate distortions and outperforms the existing reversible data hiding schemes in terms of embedded capacity and PSNR.

References


**Index Terms**

- Computer Science
- Pattern Recognition

**Keywords**

- Digital watermarking
- ROI
- RONI
- Data authentication
- CT scan image
- Embedding
- Patient report