

عنوان مقاله:

A New Method for Metal Artifact Reduction in CT Scan Images

محل انتشار:

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خلاصه مقاله:

Introduction In CT imaging, metallic implants inside the tissues cause metal artifact that reduce the quality of image for diagnosis. In order to reduce the effect of this artifact, a new method with more appropriate results has been presented in this research work. **Materials and Methods** The presented method comprised of following steps: a) image enhancement and metal areas extraction, b) sinogram transform of original image, c) metal segments and metal traces inside the sinogram transform of original image segmented by using Fuzzy C means, d) interpolation of metal traces inside the original image sinogram and filtering, and e) adding the image of metal parts to the filtered image to obtain the corrected image. **Results** Fifty CT scan images from Alzahra Hospital in Isfahan were used to evaluate the proposed method. The proposed method was applied to images which had implants in regions such as femur, hip, tooth, brain, and stomach. The results showed an intensively reduced in metal artifact and quality improvement of images till 90% for accuracy, compared with the radiologist report. **Conclusion** The proposed method reduced the effect of metal artifact by maintaining the specification of other tissues. Furthermore, the consumed time to process the suggested algorithm in this study was less than conventional methods. For instance, the consumed time for CT image, including a metal in the femur region was about 20% of the conventional method.

کلمات کلیدی:

CT Scan, Interpolation, Metal Artifact

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