Abstract

Medical image fusion is a technique that integrates complementary information from multimodality images. The fused image is more suitable for treatment plan strategies. In this paper, an efficient medical image fusion method has been proposed based on shearlet transform and human visibility feature as fusion rule. Image fusion rule is the solution that influences the quality of image fusion. The multimodal medical images were first decomposed using the shearlet transform then fusion rules were applied to shearlet coefficients. The low-frequency coefficients are fused by human visibility feature method. While, the high frequency coefficients are fused by the maximum selection fusion rule. The final fusion image is obtained by directly applying inverse shearlet transform to the fused coefficients. The technique proposed has successfully been used in CT/MRI image fusion for tumor diagnosis. The visual experiments and quantitative assessments demonstrate the effectiveness of this method compared to present image fusion.


Index Terms

Computer Science  Image Processing

Keywords

Shearlet transform; medical image fusion; human visibility feature; multimodality; CT/MRI image.