

IAF EARTH OBSERVATION SYMPOSIUM (B1)  
Interactive Presentations - IAF EARTH OBSERVATION SYMPOSIUM (IP)

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DISCRETE COSINE TRANSFORM (DCT)**Abstract**

Due to rapid growth of information technologies, new challenges raise to protect the digital data. Data security is one of the main important needs these days, especially in the field of remote sensing. Mohammed Bin Rashid Space Centre (MBRSC), provides a satellite images captured by DubaiSat-2 satellite to customers inside the UAE including government agencies, universities and research centers. To deal with the issue of data security, the concept of watermarking has been introduced. The idea of watermarking is to embed a secret watermark information inside an image and to increase the digital data security. This paper proposes a blind, robust digital watermarking technique for copyright protection of DubaiSat-2 satellite images using discrete cosine transform (DCT). The proposed watermarking technique is causing a minimal invisible distortion to DubaiSat-2 satellite images and assessed by using peak signal to noise ratio (PSNR) and structural similarity index measurement (SSIM). The proposed watermarking technique tested on a variety of color satellite images of 512x512 with 24 bits per pixels captured by DubaiSat-2 and their grey-scale version. Our proposed copyright protection algorithm gives better performance with stronger robustness of watermark information for many intentional and non-intentional attacks as compare to other state-of-art algorithms.

Keywords: Copyright protection, Watermarking, DCT, PSNR, SSIM and Satellite Images.