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*Image Fusion of Satellite Images.*

We present the results of a MAA-NREUP summer research project at the University of Texas at El Paso. Image fusion combines a high resolution gray-scale satellite image with a lower resolution multispectral satellite image to produce a multispectral image of higher spatial resolution. Techniques presented include color transfer methods as well as methods using discrete wavelet transformations (DWT). We consider three different satellite images and test each method on them. To determine the quality of the resulted fused image, we take four different measurements: The peak signal-to-noise ratio and entropy are calculated to determine the improvement of spatial resolution, while the coefficient correlation and spectral discrepancy are calculated to compare the amount of preservation of spectral characteristics. (Received September 17, 2013)