Maximum Distance Band Selection of Hyperspectral Images

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Abstract

Hyperspectral Imaging has been advanced by recent improvements in airborne imaging hardware. Early airborne HSI datasets such as Indian Pines, have a relatively low spatial and spectral resolution and are useful primarily for research purposes. Higher resolution and lower sensor noise has become the industry standard. Since there is more high quality data available, less emphasis can be placed on denoising and pixel unmixing, and the problem becomes one of computational complexity. Therefore, there is a need for preprocessing methods which reduce the amount of raw data processed by target detection algorithms. The purpose of this research is to propose a method of maximum distance automated band selection in order to preprocess hyperspectral image cube data, and present the results when compared to those using the entire data set. The goal is to significantly increase the accuracy of target detection using a Robust Matched Filter (RMF) while at the same time reducing the computational time required to process the data.

References

Index Terms
Computer Science    Image Processing
Keywords

hyperspectral, imaging, automated, standoff, target, detection,