

Research on Improved Destriping Algorithm with spectral Moment Matching for Hyper-Spectral Images

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Abstract: Striping (banding or line) noise is an common anomaly which can be seen in hyper-spectral images. Sources of image striping noise include drop lines during scanning, variations in calibrations across sensor arrays, differences between forward and reverse scanning, etc. The existing destriping methods cannot be fully applicable to those sources. This paper presents an improved algorithm for correcting striping noise of hyper-spectral images. The improved algorithm is based on continuity of spectral space of hyper-spectral images to improve traditional moment matching method. High correlation within the bands of hyper-spectral images is the foundation of this improved algorithm which has better effect than tradition spatial autocorrelation. Several experimental results demonstrate that the improved algorithm can effectively repair the striping noise of hyper-spectral images. The evaluation results based on series of evaluation criteria of image quality index indicate the image quality has been improved significantly after destriping and the improved algorithm is useful for dealing with different striping noise resources.

Keyword: striping noise, hyper-spectral images, destriping, improved algorithm