

SUPER RESOLVED REMOTE SENSING BY FUSION OF MULTI SPECTRAL AND SPATIAL DATA

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ABSTRACT:

In this paper the authors present a super resolution approach which is based on iterative data fusion algorithms. The proposed data fusion can be implemented using a plurality of spectral images as well as a plurality of images with varied resolution generated from different regions of the field of view. The data fusion suggested in this paper is gradual, allowing the build up of one single high resolution image from low resolution images and partial high resolution images. The iterative procedure used in this paper is based on iterative ping-pong computation between the spatial domain and its spectral distribution, similar to the Gerchberg-Saxton approach but with dynamic parameters. The iterative approach enables the retrieval of high resolution data from mostly-low resolution data. In both approaches mentioned, one may mix high and low resolution information by the insertion of properly defined constrains, and achieve an enhanced image in terms of clarity, resolution, correlation with true data and contrast.

TOPIC: Data fusion and data assimilation

ALTERNATIVE TOPIC: Image processing and pattern recognition