STRUCTURAL HIGH-RESOLUTION SATELLITE IMAGE INDEXING

G. Xia[*a] W. Yang[b] J. Delon[a] Y. Gousseau[a] H. Sun[b] H. Maître[a]

[b] Wuhan University, Signal Processing Lab., School of Electronic Information, LuoJia Hill, 430072, Wuhan, China
[a] CNRS, LTCI, Telecom ParisTech, , 46 rue Barrault,, 75013, Paris, France

Technical Commission VII Symposium 2010

ABSTRACT:

Satellite images with high spatial resolution raise many challenging issues in image understanding and pattern recognition. First, they allow measurement of small objects maybe up to 0:5 m, and both texture and geometrical structures emerge simultaneously. Second, objects in the same type of scenes might appear at different scales and orientations. Consequently, image indexing methods should combine the structure and texture information of images and comply with some invariant properties. This paper contributes to the indexing of high-resolution satellite images. We suggest a satellite image indexing method relying on topographic maps and a shapebased image indexing scheme. The proposed approach contains both the textural and structural information of satellite images and is also robust to changes in scale, orientation and contrast. Experimental analysis on a real satellite image database confirms the efficiency of the approach.

TOPIC: Image processing and pattern recognition
ALTERNATIVE TOPIC: Image processing and pattern recognition