Use of Multi-Resolution Wavelet Feature Pyramids for Automatic Registration of Multi-Sensor Imagery

By -

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 34 pages. Dimensions: 9.7in. x 7.4in. x 0.1in.The problem of image registration, or alignment of two or more images representing the same scene or object, has to be addressed in various disciplines that employ digital imaging. In the area of remote sensing, just like in medical imaging or computer vision, it is necessary to design robust, fast and widely applicable algorithms that would allow automatic registration of images generated by various imaging platforms at the same or different times, and that would provide sub-pixel accuracy. One of the main issues that needs to be addressed when developing a registration algorithm is what type of information should be extracted from the images being registered, to be used in the search for the geometric transformation that best aligns them. The main objective of this paper is to evaluate several wavelet pyramids that may be used both for invariant feature extraction and for representing images at multiple spatial resolutions to accelerate registration. We find that the band-pass wavelets obtained from the Steerable Pyramid due to Simoncelli perform better than two types of low-pass pyramids when the images being registered have relatively...

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