Abstract

Automatic building extraction is considered recently as an active research in remote sensing operation. It has been going on for more than 20 years but the automated extractions still encounter problems due to image resolution, variation and level of details. Because of high-object density and scene complexity this is going to be an even greater challenge especially in urban areas. This paper is going to present an ideal framework for high-resolution panchromatic images which helps in reliable and accurate building extraction operation. Proposed framework along with the consideration of domain knowledge (spatial and spectral characteristics) provides features like the nature of objects in the scene, their optical interactions and their impact on the resulting image. To analyze geometric nature of scene in better way we are using Digital Surface Model (DSM). Proposed algorithm has been evaluated using a variety of images from IKONOS and QuickBird satellites. The results demonstrate that the proposed algorithm is accurate and efficient in comparison with the state of art methods.
1. D. Chaudhuri, Senior Member, IEEE, N. K. Kushwaha, A. Samal, Senior Member, IEEE, and R. C. Agarwal, “Automatic Building Detection From High-Resolution Satellite Images Based on Morphology and Internal Gray Variance” Manuscript received February 19, 2014; revised March 13, 2015; accepted April 09, 2015.


Automatic Building Detection from Satellite Images using Internal Gray Variance and Digital Surface Model


Index Terms

Computer Science  Image Processing

Keywords

Digital Surface Model, DSM, Internal Gray Variance, and IGV.