

Information extraction(remote sensing and image analysis)



**ASSIGN
BUSTER**

Remote sensing and image analysis Samson Varghese Remote sensing and image analysis “ Remote Sensing in the most generally accepted meaning refers to instrument-based techniques employed in the acquisition and measurement of spatially organized (most commonly, geographically distributed) data/information on some property(ies) (spectral; spatial; physical) of an array of target points (pixels) within the sensed scene that correspond to features, objects, and materials, doing this by applying one or more recording devices not in physical, intimate contact with the item(s) under surveillance (thus at a finite distance from the observed target, in which the spatial arrangement is preserved); techniques involve amassing knowledge pertinent to the sensed scene (target) by utilizing electromagnetic radiation, force fields, or acoustic energy sensed by recording cameras, radiometers and scanners, lasers, radio frequency receivers, radar systems, sonar, thermal devices, sound detectors, seismographs, magnetometers, gravimeters, scintilla meters, and other instruments(The Concept of Remote Sensing)

Remote sensing is mostly used to study objects or a particular area on earth using the photographs taken by the remote satellites stationed above the earth. Microwave signals are using in such process because of these wave’s ability to penetrate clouds fog and rain. ‘ The atmosphere has a big influence in satellite and high altitude aerial remote sensing.’ (Robert A. Schowengerdt p. 48) Because of the scattering property of light by atmosphere the image obtained through remote sensing may not be clear. ‘ Variations in platform altitude, velocity, and attitude variations in the

Remote sensing and image analysis 2

elevation or altitude of a remote sensing platform lead to a scale change and <https://assignbuster.com/information-extractionremote-sensing-and-image-analysis/>

field of view'. (John A. Richards, Xiuping Jia -p. 43.) Remote sensing image data normally require two or more scenes of the same geographical region acquire at different dates to be processed together for many applications. This is because of the complexity in analyzing the image because of the too many obscured pixels in it. Most of the remote sensing image data is too low in brightness and poor in contrast. In order to improve the quality of the image automatic contrast enhancement technology is used. Remote sensing images are usually two dimensional.

The images obtained through remote sensing analyzed through the study of the number and location of spectral measurements or spectral bands. The spectral measurement in each band depend on the interactions between the incident radiation and the atomic and molecular structures of the material (pure pixel) or materials (mixed pixel) present on the ground. It is possible by computer analysis of these pixels of remote sensing image data to study the multidimensional aspect of the data including its full radiometric resolution.(John A. Richards, Xiuping Jia p. 74). The curvature of earth and variations in positions of the remote sensing platforms can affect the quality and geometry of the picture. ' The longer wavelength energy emitted by ambient earth features can be observed only with a non photographic sensing system. There is a much stronger tendency for short wavelengths to be scattered more than long wavelengths. Many remote sensing systems operate in the wavelength regions in which reflected energy predominates and hence the reflectance properties of earth features are important'. (John R Jensen-p. 9, 10, 13)

Remote sensing and image analysis 3

Sources

<https://assignbuster.com/information-extractionremote-sensing-and-image-analysis/>

1. The Concept of Remote Sensing -Retrieved on 3/1/09 -

http://rst.gsfc.nasa.gov/Intro/Part2_1.html

2. Robert A. Schowengerdt- Remote Sensing, Third Edition: Models and Methods

for Image Processing- Publisher: Academic Press; 3 edition (September 11, 2006) http://www.amazon.com/Remote-Sensing-Environment-Perspective-Information/dp/0131889508/ref=pd_bxgy_b_img_b

3. John A. Richards, Xiuping Jia - Remote Sensing Digital Image Analysis: An Introduction - Publisher: Springer; 4th edition (December 2, 2005)

<http://www.amazon.com/Remote-Sensing-Digital-Image-Analysis/dp/3540251286>

[com/Remote-Sensing-Digital-Image-Analysis/dp/3540251286](http://www.amazon.com/Remote-Sensing-Digital-Image-Analysis/dp/3540251286)

4. John R Jensen - Introductory Digital Image Processing (3rd Edition)

(Prentice

Hall Series in Geographic Information Science) - Publisher: Prentice Hall; 3

edition (May 10, 2004) http://www.amazon.com/Introductory-Processing-Prentice-Geographic-Information/dp/0131453610/ref=pd_bxgy_b_img_c

[Prentice-Geographic-Information/dp/0131453610/ref=pd_bxgy_b_img_c](http://www.amazon.com/Introductory-Processing-Prentice-Geographic-Information/dp/0131453610/ref=pd_bxgy_b_img_c)