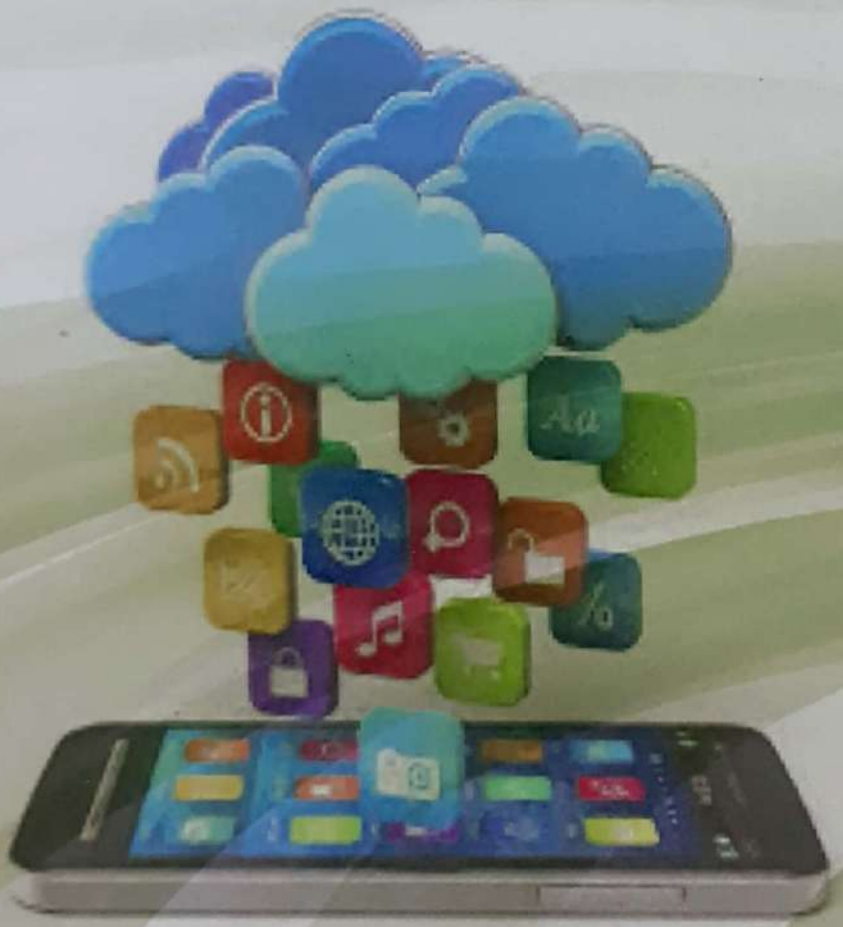
Vol. 1 Special Issue 2 December ISSN 2454-4558

An International Journal

MASTJ

Bi-Annual



APPLICATION FABRICS

Vol. 1 Special Issue. 2 December ISSN 2454-4558

An International Journal

MASIVJ

Bi-Annual

MASIVJ
Madurai Sivakasi Nadars Pioneers Meenakshi Women's College
Poovanthi, Tamil Nadu, India
Email: journmsnpioneer@gmail.com
Ph: 9843259191

Special Issue 2 December
Vol. 1 ISSN: 2454-4558

IMAGE PROCESSING AND REMOTE INTELLIGENCE

S.JEBAPRIYA
Assistant Professor, Dept of MCA
Fatima College (Autonomous), Madurai

ABSTRACT
Remote intelligence in image processing is nowadays a mature research area. The techniques developed in the field allow many real-life applications with great societal value. For instance, urban monitoring, fire detection or flood forecasting can have a great impact on economical and ecological issues. To attain such objectives, the remote sensing community has turned into a multidisciplinary field of science that embraces physics, signal theory, computer science, electronics, and communications. This paper serves as a survey of meth- ods and applications, and reviews the last methodological advances in remote sensing image processing.

Keywords - **Remote sensing, machine learning, signal and image processing, survey, applications.**

1. INTRODUCTION

Remote sensing image processing is a mature research area allowing real-life applications with clear benefits for the Society. The main goals of remote sensing are (1) monitoring and modeling the processes on the Earth's surface and their interaction with the atmosphere; (2) measuring and estimating geographical, biological and physical variables; and (3) identifying materials on the land cover and analyzing the spectral signatures acquired by satellite or airborne sensors.

Achieve- ment of these objectives is possible because materials in a scene reflect, absorb, and emit electromagnetic radiation in a different way depending on their molecular composition and shape. Remote sensing exploits this physical fact and deals with the acquisition of information about a scene (or specific object) at a short, medium or long distance.

The signal measured at the satellite by an imaging spectrometer is the emergent radiation from the Earth-atmosphere system in the observation direction. The radiation acquired by a (airborne or satellite) sensor is measured at different wavelengths and the resulting spectral signature (*spectrum*) is used to identify a given material.

The field of *spectroscopy* is concerned with the measurement, analysis, and interpretation of such spectra [1]. Some examples of passive sensors are infrared, charge-coupled de- vices, radiometers, or multi and hyper spectral sensors [2]. In active remote sensing, the energy is emitted by an antenna to- wards the Earth's surface and the energy scattered back to the satellite is measured [3].

The diversity of platforms and sensors implies a diversity and very articulated research area in which machine learning, signal and image processing are very active. In fact, from a machine learning