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Ankush Khandelwal

Objective

I am passionate about problem solving and my objective is to strive for solutions which can make a difference.

Education

2006-present **MS by Research Dual Degree(B.Tech + MS) in Computer Science and Engineering**, *International Institute of Information Technology, Hyderabad.*
C.G.P.A **7.52**

2006 **Senior Secondary(C.B.S.E)**, *Modi Public School, Rajasthan.*
Percentage **84.5%**

2004 **Secondary (Rajasthan Board)**, *St. Stephens Secondary School, Rajasthan.*
Percentage **89.0%**

Achievements

• Awarded the "**The Commendation Certificate**" by IIIT-Hyderabad for the spirit of service and performance and organisational contributions in the sports arena.

• One of the members of the team that participated in **CANSAT 2009** organised by NASA at Amarillo, Texas.

Areas of Interest

1 Spatio-temporal Data Mining, Change Monitoring

2 Multi-Sensor Data Fusion, Hyperspectral Remote Sensing

Publication

1 **Ankush Khandelwal**, K.S.Rajan, " Hyperspectral Image Enhancement Based on Sensor Simulation and Vector Decomposition", 14th International Conference on Information Fusion.
(URL: http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=05977500)

Advanced Courses Taken

Digital Image Processing, Pattern Recognition, Artificial Neural Networks, Paralled Programming, Remote Sensing, Spatial Informatics.

Skills

OS	Linux, Windows	scripting	Python
programming	C/C++, Matlab	database	MySQL
web design	HTML, CSS		

Projects

Thesis Work

Hyperspectral Image Enhancement Using Multispectral Data

Guide: Prof K S Rajan *Team Size: 1*

This work is an effort to achieve high spatial resolution hyperspectral image using multispectral data. Hyperspectral images have bad spatial resolution but good spectral resolution. On the other hand multispectral images have good spatial resolution but bad spectral resolution. The aim of the research is to obtain a good spatial resolution hyperspectral imagery while preserving its spectral properties. The proposed algorithm takes into account physical characteristics of the acquisition system using sensor simulation strategy which leads to more meaningful results than other algorithms. *A paper has been published in ICIF 2011.*

Object Based Image Analysis

Object Based Change Detection Using High Resolution Satellite Imagery

Guide: Prof. K S Rajan *Team Size: 2*

This is an ongoing project funded by Defence Electronics Applications Laboratory (DEAL) at Dehradun. This project aims at developing a fast algorithm for detecting changes in the area of interest over time. Both time efficiency and accuracy are critical as the algorithm is to be used for military purposes. The project has three main parts namely, image segmentation, object attribution and change detection. Currently we are analyzing state of the art segmentation techniques across different types of areas of interest.

Digital Image Processing

Hyperspectral Image Compression

Guide: Prof. Jayanthi Sivaswamy *Team Size: 2*

Implemented a paper titled "Hyperspectral Image Compression Algorithm Based on Adaptive Band Regrouping". During the course of the implementation some modifications were made and tested against existing algorithms.

Pattern Recognition

Unsupervised Classification of Satellite Imagery Using Genetic Algorithms

Guide: Prof. Anoop Namobdari *Team Size: 2*

Implemented a paper titled "Genetic Algorithms for the Unsupervised Classification of Satellite Images". During the course of implementation, a new method of initialisation of population was proposed and investigated.

Spatial Informatics

Analysis of Migration Patterns in Andhra Pradesh

Guide: Prof K S Rajan *Team Size: 4*

Spatial Analysis of migration patterns of different districts of Andhra Pradesh were studied for the decade 1991-2001.The analysis was based on rainfall patterns, soil type, water bodies and population change. We observed that in the given decade population migrated from lower regions of Andhra Pradesh to upper regions. In the project we gave possible reasons for the trend observed based on above mentioned parameters.

Experience

2010 - Present

Research Assistant at Lab for Spatial Informatics, IIIT Hyderabad

Currently working on Linear Spectral Unmixing Based on Multi-Sensor Data Fusion.

October 2011 - Present

Intern at Qualcomm India Private Limited

Currently working on Device Driver Implementation of IR Remote Control for Smart TVs.

Extra Curricular Activities

- Sports Captain of Vayu House in the year 2008-09.
- Member of the Institute cricket team.
- Captain of the house cricket team.
- Won many medals in athletic events in annual sports meets at IIITH.