Mode of conduction: Offline only

Learning: 36 hours of learning including hands on and field survey

Tools and Data: QGIS and SNAP tools with Python, Landsat-8/9, Sentinel-2 and Cartosat-2A data for Case Study of urban planning, flood analysis and crop monitoring

Take Home: Hands on experience with Certificate of expertise

Accommodation: Available at IIITA guest house on sharing basis as per the guest house charges

No. of seats: 25 (Max.)

Registration Fees: Rs. 3500 + GST

Registration Deadline: 20th June 2023

Registration Link:
https://apply.iiita.ac.in/event/register/

Contact

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About IIITA

The Indian Institute of Information Technology Allahabad (IIIT-A) was established in 1999, as a center of excellence in Information Technology (IT) and allied areas. The institute was conferred the "Deemed University" status by the Government of India in the year 2000. It was declared as an “Institute of National Importance” by the Act of the Parliament, Govt. of India in 2014. The Institute has been conceived with the objective of developing professional expertise and skilled manpower in IT and areas of allied research. As an apex institute in the area of IT, IIIT-A has been contributing towards strengthening the indigenous capability necessary for exploiting profitably and harnessing multi-dimensional facets of IT and allied areas at all levels, and attaining expertise to enable the country to emerge as a leading player in the global arena.

The campus is envisaged to be a fully residential one, with all its faculty, staff and students housed in different pockets. All academic and residential areas are connected to the Institute network.

Target Audience

Research scholars, Research associates, Teaching associates and UG/PG students of Engineering/IT Institutions and Universities

7 Days Workshop on Satellite Image Analysis for Contemporary Applications

10th - 16th July 2023

in

Department of Information Technology
Indian Institute of Information Technology- Allahabad (IIITA), Prayagraj (U.P.) 211015

Venue

Advanced Image and Data Science Lab.
(Room No. 5423, CC-III)

Coordinator

Dr. Triloki Pant
Assistant Professor
Department of IT, IIITA Prayagraj

About the Workshop

Satellite Image Processing is a prominent field of research and development which has become a keen interest of researchers in past few decades. There are various applications where satellite imaging is the only tool to produce the effective results, e.g., mapping of land cover, deforestation maps, growth of urban area, flood mapping etc. since a large geographical area can be monitored with the help of satellite imaging. India has a vast history of satellite missions which were successfully operated in past and continued with more number of satellites every year. This shows the strength of our country in satellite missions and thus satellite imaging system which is as rich as of any other country. Accordingly, a variety of satellite data is now available in the country for the research purpose. The digital image processing and analysis techniques applied to the satellite images produce very useful information which can be utilized for various land cover applications. The proposed program is for the beginners to learn the basics of satellite image processing and analysis tools in an effective way by providing the exposure to various image analysis tools and to discuss contemporary problems for future research.

Topics to be covered

1. Introductory Remote Sensing
- **a.** Remote Sensing of Earth Surface
- **b.** Land Use and Land Cover Classes
- **c.** Ground Data Collection and Sampling

2. Types of Satellite Imagery
- **a.** Electromagnetic Spectrum for Imaging
- **b.** Optical Imaging
- **c.** Infrared Imaging
- **d.** Microwave Imaging

3. Elements of Digital Image Processing
- **a.** Digital Image Basics
- **b.** Image Enhancement Techniques
- **c.** Multiband Image Processing
- **d.** Feature Detection and Extraction

4. Satellite Image Analysis: Open source tools
- **a.** Basics of QGIS: Image Enhancement Tools
- **b.** SNAP Basics for Image Enhancement

5. Image Classification Techniques
- **a.** Supervised Classification
- **b.** Unsupervised Classification
- **c.** Hybrid approaches

6. Change Analysis Techniques
- **a.** Detection of Change in multi-temporal images
- **b.** Change Detection Algorithms

7. Contemporary Applications of Satellite Image Analysis
- **a.** Urban Grown Analysis
- **b.** Mapping of Agricultural Area
- **c.** GIS Based Applications

Objectives

- To provide an exposure of satellite image processing and analysis to naïve users
- To teach the satellite imaging tools to beginners
- To provide a hands on experience of satellite image processing and analysis tools
- To discuss research ideas and topics in satellite image processing applications

Methodology

The program will be conducted in form of lectures followed by hands-on. Each session will have a dedicated section for discussion. One dedicated session will be for discussion of the problems raised by the research scholars followed by proposed solution by the experts.

Distinguished Speakers

Experienced faculty from IIITA and other renowned institutes including

Dr. Kamal Pandey, Scientist/Engineer - SE (IIRS-ISRO Dehradun)

Dr. Sudhir Kumar Singh, Assistant Professor (Allahabad University)

Dr. Sonam Agrawal, Assistant Professor (MNNIT Allahabad)

Dr. Manoj Kumar, Assistant Professor (BBAU Lucknow)

Dr. Rishi Prakash, Professor (Graphic Era University Dehradun)