BANGALORE CHAPTER

MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE Manipal)

TWO DAYS ONLINE WORKSHOP
on
SYNTHETIC APERTURE RADAR (SAR) DATA ANALYSIS AND APPLICATIONS

9th and 10th Dec 2022

JOINTLY ORGANISED BY
IEEE GRSS STUDENT BRANCH CHAPTER, MIT MANIPAL,
IEEE GRSS BANGALORE SECTION
AND
DEPARTMENT OF MECHATRONICS, MIT MANIPAL

REGISTRATION LINK

https://tinyurl.com/bdzh236e

Last date for registration: 8th Dec 2022

1. Overview of workshop

Satellite imagery was made possible by remote sensing instruments by measuring the energy of the electromagnetic spectrum. Earth observation satellites use optical sensing devices to capture the energy in the visible, infrared, thermal, and microwave spectrum. However, these are passive sensors as they use the energy emitted from another source such as the sun. Synthetic Aperture Instruments are active sensors, which they emit the energy towards earth and measure the energy reflected from the earth's surface. These use radar technology to sense microwave and radio portion of the spectrum. SAR provides the details about the surface of the Earth such as buildings, trees, mountains, lakes, etc. It provides the topography of the Earth.

SAR satellites operate day and night as they don't depend on Sun's energy to collect the surface data. In addition, they can penetrate through clouds to obtain the surface underneath, allowing satellites to have complete view of Earth regardless of atmospheric or lighting conditions. SAR can capture the images in spite of smoke, vegetation, snow, sand, cloud etc. Hence, SAR is very useful imagery for scientists and policymakers to understand the environment. Also, these images aid in assessing the climate change, ecosystem loss, natural disasters. Few examples include agriculture (crop harvesting), Flood, Snow (wet or dry), Land displacement, Fires, Wetland information, Geohazards, Surveillance, Infrastructure, etc.

Many recent algorithms offer many potential applications in the field of remote sensing data processing and analysis. One such potential for effective and efficient classification of remotely sensed imagery. The strengths of recent algorithms include the capacity to handle data of high dimensionality and to map classes with very complex characteristics. Nevertheless, implementing recent algorithms for classification is not straightforward, and the literature provides conflicting advice regarding many key issues.

The proposed workshop provides exposure to Synthetic Aperture Radar data analysis, practical problems, and solutions through various case studies. In addition, participants are able to gain knowledge on tools that could be used to analyse the SAR images.

2. Key objectives

- To give exposure to the fundamentals of Synthetic Aperture Radar (SAR) data analysis and applications.
- Provide exposure to practical problems and their solutions through case studies.
- Familiarize various tools employed for SAR data analysis.

3. Resource Persons

Faculty from IIT Bombay, IIT Indore, and Scientists from ISRO (IIRS and NRSC)

4. Who can attend

- Students at all levels (Ph.D/M.Tech/MSc/B.Tech(3rd Year))
- Faculty members from academic institutions.
- Engineers and researchers from Industry, organizations including R&D centres

Welcoming proposals for innovative project idea in related domain:
Best proposal to be awarded with cash prize
Link for submission will be shared during the workshop

5. Workshop details

5.1 Duration: 2 days (FN session only)

5.2 Schedule

Dr. Shashi Kumar, Scientist-SE, IIRS(ISRO) Dehradun
Topic: Introduction and Application of SAR Data
Date : 09-12-2022
Time: 10:00am to 11:30am
Dr. Avik Bhattacharya, Professor, IITB Mumbai
Topic: Introduction and Application of SAR polarimetry
Date : 09-12-2022
Time: 11:30am to 1:00pm
Dr. Unmesh Khati, Assistant Professor, IIT Indore
Topic: Synthetic Aperture Radar remote sensing for ecosystem mapping and monitoring
Date : 10-12-2022
Time: 9:30am to 11:00am
Dr. Tapas R. Martha, Scientist-SG, NRSC(ISRO), Hyderabad
Topic: SAR for landslide mapping and monitoring
Date : 10-12-2022
Time: 11:15am to 12:45pm

6. No Registration Fee Link for registration: https://tinyurl.com/bdzh236e

E-certificates will be issued for all participants
Note: Preference for IEEE GRSS, and IEEE members.

7. Last date for workshop registration: 8th Dec 2022

8. Student Volunteers:

Moogala Smrithika, Student Chair, MIT IEEE GRSS SB
Srijith Radhakrishnan, Vice Chair, MIT IEEE GRSS SB
Samarth Shankar, General Secretary, MIT IEEE GRSS SB
Deeksha Sabari, Joint Secretary, MIT IEEE GRSS SB
Nikhil Mohan, Joint Secretary, MIT IEEE GRSS SB
Babitha, Treasurer, MIT IEEE GRSS SB

9. Workshop Coordinators

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