



## High-End Workshop (Karyashala)

On

# Geospatial Intelligence & Applications

**26 - 31 July 2023**



## Relevance of Karyashala

Geospatial technology is an emerging field that studies the real Earth geographic information using Geographical Information Systems (GIS), Remote Sensing (RS), Global Navigation Satellite Systems (GNSS), and other information from various devices and instruments. Spatial technologies have found applications in diverse domains ranging from agriculture and ecology to defense. Different government, private, and non-governmental organizations are widely adopting geospatial frameworks for achieving various societal advancements. The advancements in artificial intelligence and machine learning present a unique opportunity to improve geospatial technologies and applications. The future of geospatial technologies lies in the intersection of spatial strategies with machine learning techniques. Hence, early career scientists should understand the fundamentals and prospects of both domains to strive for research and technology for societal development. In this regard, the course will cover the basics and advancements of geospatial intelligence along with its prospective applications. We invite applications to the **offline course** on “**Geospatial Intelligence & Applications**” from enthusiastic doctoral students and researchers who wish to take advantage of this exciting opportunity to learn about the latest trends in geospatial data analysis.

## Course Objectives

- Bridge together the industry and academic professionals from geospatial technology and machine learning domains.
- Share experiences and initiate efforts to use machine learning advancements to resolve the open problems in the geospatial domain
- Workshop participants will learn the basics of both domains and will also be exposed to the recent developments and trends in academic and industrial research
- Hands-on sessions will give the practical experience of using machine Learning in the geospatial domain and related applications
- Course projects will also be designed to impart practical knowledge to the participants
- Initiating a forum of researchers who can develop geospatial intelligence research in India in a structured manner.

## Application Form

Link to Registration form: <https://forms.gle/bKi3QMpQJyVBWLbR7>

**\*No Registration Fee**





## Patron

Prof. G Kannabiran, Director, IIIT Sri City

## Resource Persons

Prof. Arun K Saraf, Professor, IIT Roorkee  
 Prof. Alok Porwal, Professor & HoD, IIT Bombay  
 Prof. B S Dayasagar, Professor & Head, ISI Bangalore  
 Prof. B Krishna Mohan, Professor, IIT Bombay  
 Prof. C Chandrasekhar, Professor, IIT Madras  
 Prof. Nagesh Kumar, Professor, IISc Bangalore  
 Dr. Sameer Saran, Head, RC, ISRO  
 Dr. Rama Rao Nidamanuri, Professor & HoD, IIST, Trivandrum  
 Mr. Pankaj Mishra, Deputy Surveyor General, Survey of India, Hyderabad  
 Dr. Rakesh Kumar Sanodiya, Asst. Professor, IIIT Sri City  
 Dr. Mani Priya S, Asst. Professor, IIIT Sri City  
 Col. Kuldeep Yadav, Director, Indian Army  
 Prof. Surya S Durbha, Professor, IIT Bombay  
 Dr. Rabi Narayan Sahoo, Principal Scientist, IARI, New Delhi  
 Mr. Deepak Choksi, CTO & Co-founder, Bhugol GIS Pvt Ltd., Mumbai  
 Dr. Madhumita Dash, Principal AI Research Engineer, Fasal Pvt Ltd.  
 Dr. Durga Rao KVH, Group Head & Scientist, ISRO, Hyderabad  
 Dr. Gaurav Dixit, Professor, IIT Roorkee  
 Prof. Subhankar Karmakar, Professor, IIT Bombay  
 Prof. S.S. Gedam, Professor, IIT Bombay  
 Dr. Rajeev Ranjan Sahay, Asst. Professor, IIT Kharagpur

## Topics

Geospatial Technologies & Applications  
 Machine Learning & Deep Learning  
 Geomatics & Machine Learning  
 Raster and Vector Data Analysis  
 Processing & Analysis of Remotely Sensed Images  
 Model deployment & WebGIS  
 Terrain Modeling & Analysis  
 Geospatial Data Intelligence and Analysis  
 Applications of Geospatial Intelligence  
 Open Source Tools & Platforms for Geointelligence  
 Practical Sessions on Geointelligence

## Schedule of the Workshop

	Day1	Day2	Day3	Day 4	Day 5	Day 6
Time	26/07/23	27/07/23	28/07/23	29/07/23	30/07/23	31/07/23
9.30 AM - 10.30 AM	Introduction to Digital Image Processing	Remote Sensing & Applications	Geospatial Technology for Mineral Prospectivity Modelling	Spatial Interpolation Techniques	An overview of multi-criteria decision techniques	Geospatial Technology in Water Management & Hydrology
10.30 AM - 11.30 AM	Geospatial Technologies & Applications	Introduction to Machine Learning	Processing & Analysis of Remotely Sensed Optical Images	Mathematical Morphology in Geospatial Data Science	GeoSpatial Data Intelligence	Geospatial Technology for Disaster Management
11.45 PM - 12.45 PM	GNSS & Applications	Introduction to Deep Learning	Hyperspectral Image Processing & Analysis	Terrain Modeling & Analysis	Geospatial Technology for Agriculture	Geospatial Technology for Supply Chain Management
1:00 PM-2:00 PM	Introduction to Geographic Coordinate Systems & Surveying	Introduction to Machine Learning Techniques for Geospatial Applications	Raster & Vector Data Analysis	False Topographic Perception Phenomena in Remote Sensing Images and its correction techniques	Geospatial Technology & IoT	Explainable AI & Geospatial Technology
<b>Lunch Break</b>						
3.00 PM - 4.00 PM	Hands-on session on GIS	Hands-on session on Machine Learning	Hands-on session on Python-based spatial data analysis & WebGIS based deployment	Hands-on session on QGIS plugins & Python-based raster & vector data analysis	Hands-on session on deep learning-based spatial data processing and analysis	Geospatial Technology in Transportation and Planning (Dr. Mani Priya S)
4.00 PM - 5.00 PM						Environmental Modeling & GIS (Prof. Subhankar Karmakar)
5.00 PM - 5.30 PM	Assessment of Graded Assignment	Assessment of Graded Assignment	Assessment of Graded Assignment	Assessment of Graded Assignment	Assessment of Graded Assignment	Valedictory Function
5.30 PM - 6.00 PM						

## Organizers

Dr. Arun P V, Asst. Professor, Indian Institute of Information Technology, Sri City  
Dr. Girish G N, Asst. Professor, Indian Institute of Information Technology, Sri City

## Student Coordinators

Ms. Soorya S, Indian Institute of Information Technology, Sri City  
Mr. Sudarshan, Indian Institute of Information Technology, Sri City  
Mr. Kislay Sinha, Indian Institute of Information Technology, Sri City

## Application Deadline

Application Last Date: June 15, 2023

## Support to Participants

**TA and Food & Accommodation** will be provided to participants as per the SERB AV norms

Maximum number of participants is limited to **TWENTY FIVE**

## Contact Details

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