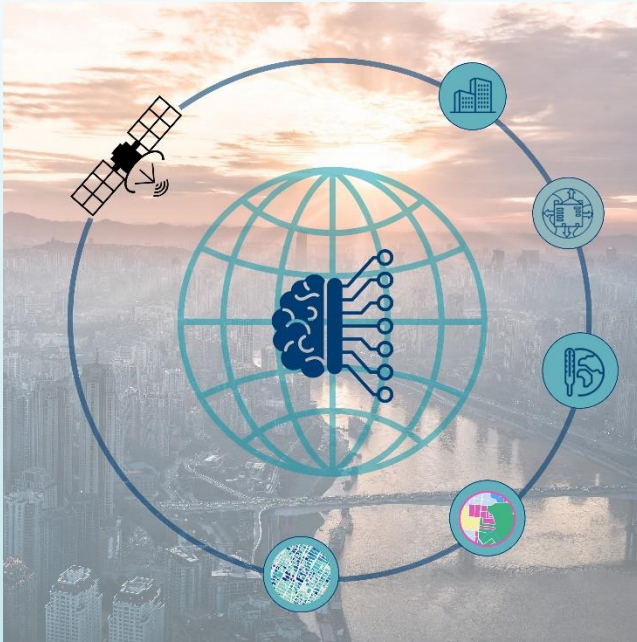## Machine Learning Application in Urban Studies

June 05-09, 2023

Organised by

Indian Institute of Remote Sensing

Indian Space Research Organisation
Department of Space, Govt. of India
Dehradun

www.iirs.gov.in

About IIRS

Indian Institute of Remote Sensing (IIRS) under Indian Space Research Organisation (ISRO), Department of Space, Govt. of India is a premier Training and Educational Institute set up for developing trained professionals in the field of Remote Sensing, Geoinformatics and GNSS Technology for Natural Resources, Environmental and Disaster Management. Formerly known as Indian Photo-interpretation Institute (IPI), founded in 1966, the Institute boasts to be the first of its kind in entire South-East Asia. While nurturing its primary endeavor to build capacity among the user community by training mid-career professionals, the Institute has enhanced its capability and evolved many training and education programmes that are tuned to meet the requirements of various target groups, ranging from fresh graduates to policy makers including academia. IIRS also conducts e-learning programme on Remote Sensing and Geo-information Science (http://elearning.iirs.gov.in).

IIRS Academia Meet 2023

Urban and Regional Studies Department

Urban and Regional Studies Department (URSD), formerly known as Human Settlement Analysis Group (since its inception in 1983 in collaboration with ITC, The Netherlands) is engaged in capacity building activities for the sustainable development of urban regions. Since 1968, 800+ professionals under various on-campus courses and 17000+ professionals through IIRS outreach programmes have been trained in Urban and Regional Studies, namely M.Tech. and P.G. Diploma (IIRS and CSSTEAP) and AMRUT courses and customized special courses for various Ministries and User Departments such as HUDCO, NCRPB, TCPO, etc. Under NNRMS programme, a large number of University faculty members have been trained in geospatial applications in Urban and Regional Studies.

118[h] IIRS Outreach Programme

IIRS has setup a state-of-the-art studio facility and control room to broadcast live and interactive classroom sessions and practical demonstrations through its Distance Learning Center. The high definition video quality can be broadcast to its users for better quality transmission. The IIRS outreach programme, which started in 2007 with 12 universities/ institutions has now grown substantially. Currently, 1000+ Network institutions spread across India are networked with IIRS.

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About the Course

Machine learning techniques have gained tremendous popularity in recent years due to their ability to learn patterns and make predictions from large datasets. This has led to the development of numerous applications in a wide range of fields. In urban studies, machine learning techniques can be applied to solve a variety of problems. One of the most significant applications of machine learning in urban studies is LULC mapping. By analyzing satellite images using machine learning algorithms, it is possible to identify and map different land-use and land-cover types such as vegetation, water bodies, and built-up areas. Another useful application of machine learning in urban studies is building footprint extraction. Machine learning algorithms can detect and delineate building footprints accurately, which is useful for tasks such as urban planning and disaster management. Similarly, machine learning can also be used for greenspace extraction, where it can identify and map green spaces such as parks, forests, and gardens, which are essential for urban sustainability and public health. In addition, machine learning techniques can be used for urban growth modeling and slum mapping. Given the rapid expansion of urban areas and the increasing number of people living in slums, it is crucial to understand the dynamics of urban growth and identify areas that require urgent attention.

Objective of the Course

The overall objective of this distance learning course is to promote awareness among users, researchers, urban planners, and professionals regarding the concepts of machine learning for urban related studies. The course aims to disseminate knowledge and practical applications of machine learning techniques in the field of urban studies. Participants will gain a better understanding of how machine learning can be applied in urban-related studies and can help in addressing various urban challenges.

Curriculum

Following topics will be covered in this course
- Overview of AI/ML techniques
- ML/DL for feature extraction
- ML/DL for urban modelling

Hence, we invite you to attend this one-week online course on "Machine Learning Application in Urban Studies ". The course is scheduled during June 05-09, 2023. The course will contain five lectures (One each day) covering various applications of machine learning/deep learning in urban studies.

Target Participants

The candidate who wants to participate in the course should be a student of final year undergraduate course or postgraduate course (any year). Technical / Scientific Staff of Central / State Government / Faculty / researchers at university / institutions in the field of Urban & Regional Planning, Geospatial Technologies, Civil Engineering, Architecture and Modeling Community are also eligible to apply for this course.

Course Funding

The programme is sponsored by Indian Space Research Organisation (ISRO), Department of Space, Government of India.

Award of Certificates

All participants will be awarded a certificate of participation based on 70% attendance during the online classes.

How to apply / Course Registration

- Course updates and other details will be available on URL- http://www.iirs.gov.in/Edusat-News/.
- To participate in this course, interested organizations / universities / departments / institutes have to identify a coordinator at their end. The identified coordinator will register online their Institute as nodal center in IIRS website https://elearning.iirs.gov.in/edusatregistration/
- All the participants have to register online through registration page https://elearning.iirs.gov.in/edusatregistration/student
- by selecting their organization as nodal center.

Programme Reception

The programme can be received through eclass platform of IIRS-ISRO using internet connectivity. No specific hardware / software is required. however good internet connectivity is recommended at user end. To run the programme in a class room, following computer hardware will be required:
- Desktop computer with web camera microphone & output speaker or laptop with microphone camera and output speaker
- Large display screen /projector/TV

Important Dates

- See the "How to apply / Course Registration" section on details of enrolment process.
- The last date for receiving online applications for the course on **June 02, 2023** Till 1700 hrs
- The course will be conducted online during June 05-09, 2023 via the IIRS eclass platform *https://eclass.iirs.gov.in/*

Course Fee: NIL

There is no course fee for this course.