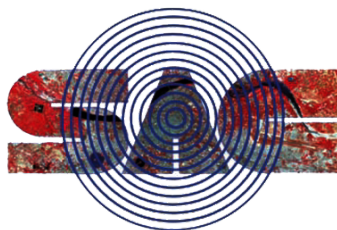# Machine Learning (ML) and Deep Learning (DL) for Earth Observations (EO) Applications

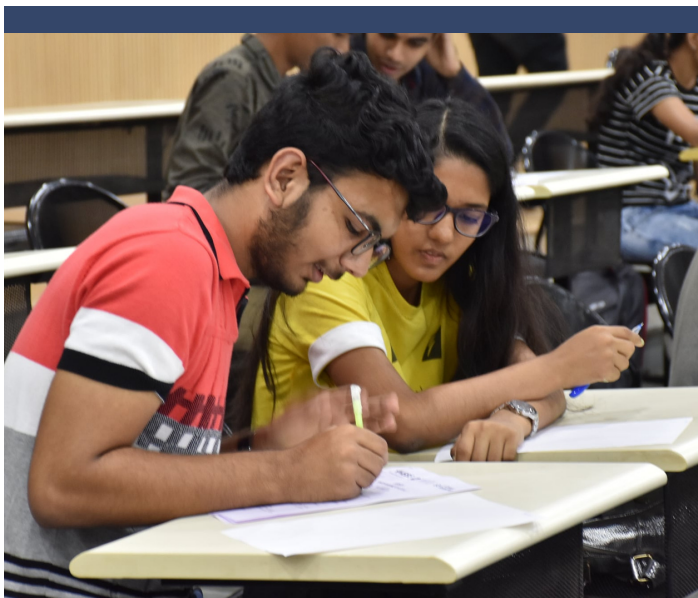## August 9–13, 2021

www.isro.gov.in

www.sac.gov.in

www.daiict.ac.in

Course Overview

DA-IICT is inviting registration from interested candidates for a free online course "Machine Learning (ML) & Deep Learning (DL) Earth Observations (EO) Applications". Over the last decade, ML & DL as a sub field of Artificial Intelligence (AI) has evolved as the most powerful technique for analyzing all types of data e.g. healthcare, language, speech, business etc.

With the availability of several hundreds of satellites in low earth orbit, a huge amounts of data are being collected every day over the earth surface. There is an urgent need to analyze these data for quick and meaningful conclusions for natural resources management. This course aims to provide an insight into the opportunities of ML and DL for analyzing the EO data. The short course can be completed in five days, and participants will also receive certificate.

5 Days Online Free Training Program in Collaboration with SAC, ISRO

Online Classes from 17:00–19:00 hrs

Last Date for Registration :
6th August, 2021, 12:00 AM

Contact Us

Dr. Ranendu Ghosh
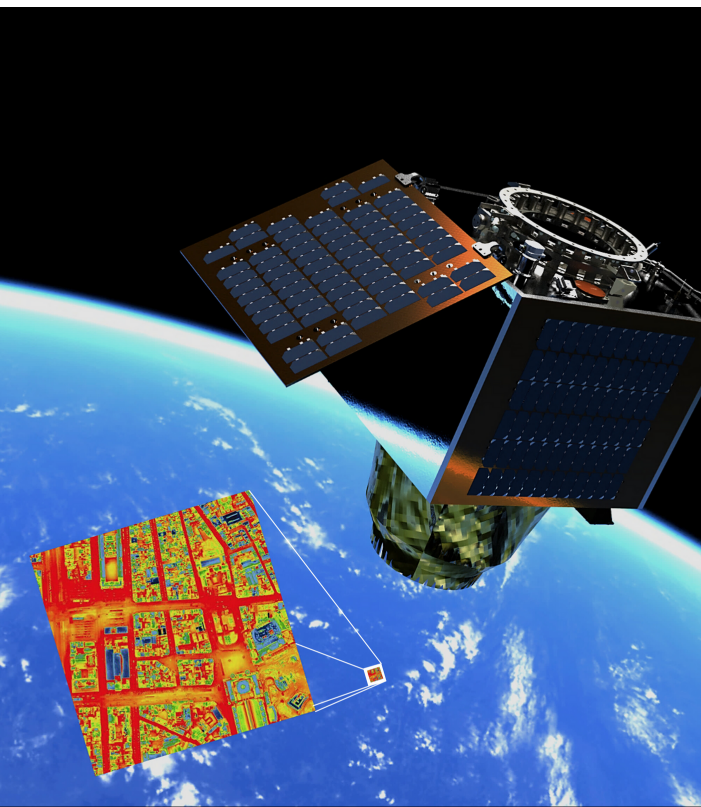Professor, DA-IICT & Retired Scientist, ISRO
Email : ranendu_ghosh@daiict.ac.in
Mobile no.: 9327043612

Module 1: Fundamentals of ML& DL

1. Regression model, logistic regression, gradient descent-based model.
2. Neural Networks, Convolutional Neural Networks for image processing applications like classification, segmentation and denoising.
3. RNN, LSTM architecture for time series analysis.
4. GAN for generating data.

Module 2: EO Applications Using ML & DL

1. Ship Detection using satellite images using Reception Networks
2. Applications of Deep Learning in Urban studies
3. Prediction of NDVI time series with Network Architecture Search methods
4. Identification of snow and clouds in the Himalayas
5. Applications of Generative Adversarial Networks with Expert Regularization in Remote Sensing

Module 3: Invited Talk Series

1. Role of AI-ML in Smart Cities to create sustainable values.
Amnex InfoTechnologies, Ahmedabad
www.amnex.com

Speaker: Mr Mihir leads *Amnex's* R&D-AI Lab. He has rich domain experience in different industries such as water, chemical process, environment, oil & gas upstream operations, Public Transportation, Agriculture, Highway Infrastructure and now developing AI-powered building blocks for the same. He has the ability to manage complex technical projects. He has published research papers in internationally renowned journals and an official reviewer of the Elsevier Journals.

2. Machine Learning in Digital Navigation Maps using Satellite Images and Data.
Here Technologies, Mumbai
www.here.com/company

Speaker: Dr Ravindranath is working as Head of Local Data Intelligence for South Asia Pacific in *Here Technologies* with experience of 15 + years in the field of Remote sensing and Geoinformatics. He has the background of M. Tech in remote sensing & geoinformatics from Bharathidasan University, MBA in International Business from Pondicherry University, Executive Postgraduate in strategic management from Indian Institute of Management – Kozhikode.

COURSE REGISTRATION

All the participants has to register online in the given link:
https://forms.gle/j45pwdAcXd9VPANq6

TARGET PARTICIPANTS

The course is open to graduate and postgraduate students in engineering, science and IT disciplines. Professionals working in the domain is also eligible.

CERTIFICATE

- Online classes will be held for 2 hrs everyday.
- Inauguration session is on 8th August and examination and conclusion session are on 14th August.
- Participants can attend the course live via Webex.
- Participation certificates will be awarded to all the students with attendance of 70% and a special certificate will be awarded after passing the examination with 50% marks. Appearing in examination is voluntary.