OVERVIEW

Deep learning is a method of data analysis that automates analytical model building. Deep learning techniques are becoming very necessary due to various factors like; growing volumes and varieties of available data; cheaper and more powerful computational processing with affordable data storage. Deep learning methods build fast and automatic models that can analyze extremely complex large data with more accurate and faster results on a very massive scale.

This analysis process facilitates organizations to identify profitable opportunities and avoid unknown risks. Like many domains, deep learning has been used extensively in the area of image analysis. This course is dedicated to the discussion of deep learning techniques applied to remote sensing image analysis.

The topic is of particular interest considering the fact that ample volume of remote sensing images of different modality is available currently. The program would help the participants to understand the key concepts behind deep learning and how it is adaptable to any environment. It’ll give an extensive hands-on experience to the participants.

LEARNING OBJECTIVES

The programme seeks to address:

- Introduction of deep learning for image analysis.
- Introduction to different satellite remote sensing images.
- Understanding of shallow and deep architecture.
- Understanding modeling and training of deep learning approaches.

KEY FACULTY

Prof. Biplab Banerjee  
Professor of Machine Learning at the Centre of Studies in Resources Engineering (CSRE)

WHO WILL BENEFIT

This programme emphasizes on high quality understanding; enhancing the knowledge of business professionals and scholars to have a growth in the field to implement deep-learning and benefit from its use. It will specifically benefit:

- Industry Professionals
- College Faculty

COURSE OUTLINE

- Problem of visual recognition in Remote Sensing
- Traditional ways of image recognition
- Convolutional neural networks (CNN)
  - Introduction
  - Idea of different layers
  - Regularization and optimization
  - Models (AlexNet, VGG, ResNets, etc.)
  - Object Detection using R-CNNs
  - Segmentation using CRNNs
- Auto encoders and its variants
- Recurrent networks: RNN, LSTM, GRU etc.
- Generative models: GANs and variational auto encoders
- Examples from VHR satellite images and hyperspectral images

COURSE OUTLINE

- The program would help the participants to understand the key concepts behind deep learning.
- Participants would be able to learn how to build deep learning that is adaptable to any environment in real life.
- Hands-on experience in hyperparameter tuning and regularization practice, minibatch gradient descent, autoencoders, convolutional neural network application using tensorflow and keras.

KEY INFO

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<th>3 Days</th>
<th>1st to 3rd November, 2019</th>
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Academia: INR 10620
Government: INR 14160
Industry: INR 14160
Student (Full Time): INR 5310

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