Excellence Educational Academy

Alipore, Kolkata

*[Where **TALENT** is the keyword]*

Sister Concern is

e-DIGITAL LEARNING

AN INSTITUTE FOR MULTIDISCIPLINE TECHNICAL COACHING CLASSES & GUIDANCE

[Founded and Directed by a Renowned Academicians & Corporate Professionals]

Ref. No. : EEA/DL/IT/2023 **Date : 12/07/2023**

Data Science-IT Professional Course Curriculum for IT Participants

Name of the Corporate Training Course:

DEEP LEARNING

Synopsis: The course is designed to teach on the advanced concepts of Deep Learning (DL). The course will cover a brief recapitulation of DL fundamentals followed up by advanced concepts in the domain of DL. Completion of the course will enable the participant to deal with high dimensional data and extract important features from it, grasp advanced modelling techniques in DL, build these models in Python, and identify cases where it can be applied. The course consists of Theory (40%) and Practical (60%), comprising of Industry-based Use Cases.

Category: Deep Learning
Duration: 60 Hours (48 Hours + 12 Hours [Capstone Project])
Delivery Mode: Virtual Instructor-led / Classroom-based
Prerequisites: Basic knowledge of programming, high-school mathematics | Laptop/Desktop with internet connection
Tools: Jupyter Notebook, Spyder IDE
Python packages: NumPy, SciPy, Pandas, Matplotlib, Seaborn, Scikit-Learn, TensorFlow, Kera's

Modules:

1. **Introduction to Deep Learning [4 Hrs]**
a. Fundamentals of Artificial Neural network
b. Multi-Layered Perceptron (MLP)

2. **Recap of Machine Learning Fundamentals [4 Hrs]**
a. Connection between AI, ML and DL
b. Types of learning
c. Applications of Deep learning

d. Python Programming for Deep Learning

3. **Training of a Artificial Neural Network (ANN) [10 Hrs]**
a. Weight Initialization, Activation Functions, Loss Function, Objective Function
b. Gradient Descent
c. Backpropagation
d. Different Optimization Functions
e. Introduction to TensorFlow and Kera's
f. Installation, understanding Ecosystem
g. Building a deep neural network from scratch

4. **Introduction to Convolutional Neural Networks (CNN) [8 Hrs]**
a. Convolution operation
b. Pooling operation
c. CNN: Activation Map: Understanding Volume, Reduction of dimension
d. Understanding state-of-the-art CNNs: LeNet, AlexNet, VGG, ResNet, InceptionNet
e. R-CNN, Object Detection

5. **Recurrent Neural Networks (RNN) [8 Hrs]**
a. Sequence modelling and recurrent connections
b. Backpropagation in time
c. RNN limitations: Exploding, vanishing gradient
d. Long Short-Term Memory (LSTM) and Gated Recurrent Units (GRU)
e. Encoder, Decoder
f. Attention Model – Transformers

6. **Neural Network for Unsupervised Learning [6 Hrs]**
a. Introduction to Autoencoders
b. Understanding architecture of autoencoder
c. Denoising autoencoder, Sparse autoencoder

7. **INTRODUCTION to Generative Adversarial Networks (GANs) [4 Hrs]**
a. Generator, Discriminator
b. Loss Computation of GAN
c. Training of GAN
d. Types of GAN

8. **INTRODUCTION to Genetic Algorithm and Implementation (GA) [4 Hrs]**

9. **CAPSTONE PROJECT [12 Hrs]**

i) Gender Recognition Using Voice

We can accurately determine a person's gender by listening to their voice. Machines can also be taught to distinguish between male and female voices. We'll need audio clips with male and female gender labels. The

data is then fed into the classifying model using feature extraction techniques. This project can be extended further to identify the mood of the speaker.

ii) Chatbot

Making a chatbot using deep learning algorithms is another fantastic endeavor. Chatbots can be implemented in a variety of ways, and a smart chatbot will employ deep learning to recognize the context of the user's question and then offer the appropriate response.

About Course

- If You Want To Take This Course **Online** , The Course fees Will be **3000 rupee/month.**
- If You Want To Take This Course **Offline**, The Course fees Will be **4000 rupee/month.**
- Course Duration – **4 Months i.e. 60 Hours (48 hrs + 12 hrs (Capstone Project))**
- Payment - (Strictly in MONTHLY system) and ONE-month advance, which will be, adjust in the last month of the course.
- Small group of Study (At-Least **10 students** & At-most **15 students** in ONE group).
- The Classes Will be taken **2 Days/Week and 2 Hours /Day.**
- **On Successful Completion of the Course along with Hands-on Assessment, Certificate will be Awarded.**
- **After Completion of the Course, INTERNSHIP on the same Domain Technology will be provided for doing hands-on work on real-life Industrial Project followed by Job Assistance(Reference for up to 3 Interviews) in IT/SW Industry.**
- **Both Theoretical & Hands-on Training will be Provided by Highly Qualified & IT Experienced Senior Professionals those are fully settled in IT Industry since long and having Job Referral capacities.**

If you are really interested for building a Career with Excellent hi-end Hands-on Studies followed by IT Internship & Job in Deep Learning Technology Domain area in IT/SW Industry, then only Contact below mentioned contact details for Enrollment into the Course.