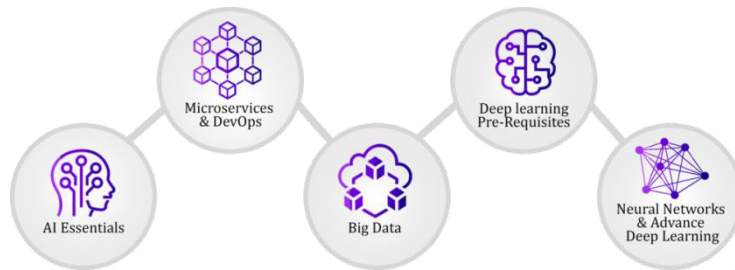


# DEEP LEARNING



## Make data-driven decisions with Deep Learning (80 Hours)

Sentilient AI's Deep Learning (DL) Corporate Training is a 5 modules, part-time, online course that offers from learning the fundamentals of AI all the way to implementing your own neural network and applying it to a real-world problem.

Deep learning comprehensive curriculum covers all key aspects of Computer Vision and NLP and its application across a multitude of fields. We believe in 'learning by doing' method & this course will be focused on real-time projects and experience-driven teaching to help your team to understand the real-world AI modeling that will fit on the edge devices.

By the end of the course, you team will be able to implement DL projects within your professional environment and will possess the necessary foundations to build up your expertise further.

### Takeaways-

- Understand AI's unique challenges and opportunities
- Gain practical and strategic comprehension of DL
- Explore Deep Learning techniques and applications
- Learn how to develop AI systems in real world
- Solve real DL problems through hands-on projects using CNN / NLP
- Prepare your teams for futuristic data driven changes.

### Who should attend?

- VPs, Senior Managers
- Developers & Engineers
- Functional Business Managers and Business Heads
- Leadership Roles with Oversight of AI Teams
- College Faculties & PhD candidates

## What cohorts learn-

Over the course of five weeks, attendees get hands-on experience with implementing DL models on the state-of-the-art AI infrastructure and utilize real-world data to gain skills that can be used the next day.

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### Module 1

Week 1 will start with brief focus on Ubuntu OS, basic ML algorithms, various tools like Jupyter Notebooks, Google Co-Labs, PyCharm, etc. Learning Python will be placing a right foot towards the AI journey. This module will take you deeper into the flow of Python and its verticals along with the basics of mathematics.

#### Linux & GIT

- Unix File System
- GIT
- CUDA

#### Math Review

- Vectors & Matrices
- Determinants & Random Variables
- Eigenvalues & Eigenvectors
- Statistics & Probability

#### Python

- Sklearn
- Numpy
- Scipy
- Matplotlib
- Pandas

### Module 2

Week 2 module is a real-time adventure focusing on python & its applications followed by understanding databases and its storage types. This module is focused on tools needed to develop the end-end AI Applications including industry used microservices & messaging protocols.

#### Microservices

- Apache Kafka
- Databases
- ETL pipeline
- Intro to Apache Spark
- SparkML

#### DevOps Tools

- Kubernetes
- Dockers & Containers

#### Cloud Tools

- Amazon cloud
- Introduction to Google Cloud
- Microsoft Azure

## Module 3

Proper data storage knowledge will help the company reduce the time for the AI model training as the data communication & latency will be reduced with smart data-architectures.

Here we will go in deep dive what is big-data and how the data storage works. We will talk about the data-storage devices and how they are used in the DL application development for the model scaling and model re-training to increase accuracy.

### Big-Data

- Data Storage
    - Network File System (NFS)
    - Hadoop Distributed File System (HDFS)
  - YARN & Map-Reduce
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## Module 4

Week 4 module will start with Image/Video pre-processing and its plugins integrated with the embedded edge-devices used for data extraction. This module will provoke the brain to grasp the knowledge with the hardware accelerators & it's architecture, DL Frameworks, API integration, etc.

### ML Frameworks

- Tensorflow
  - Tensorboard
- PyTorch
- Keras

### Vision Fundamentals

- GStreamer
  - Deepstream Video Pipeline
  - OpenCV
  - AI edge devices
  - ADVIT – Data-Labeling Tool
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## Module 5

Master the DL techniques which will give you a wide knowledge on edge cutting applications, including image recognition, libraries, machine translation, self-driving cars, speech recognition, and more. This module will build a strong foundation of the team, in Deep learning and developing real-time AI applications. This module also covers the industry practices which are followed for data & model governance.

## Neural Networks

- Neurons & Perceptron
- Backpropagation

## Convolutional Neural Networks (CNNs)

- Intro to CNNs
- Layer Operations
  - Convolution Layer
  - Activation Layer
  - Dropout Layer
  - Pooling Layer
  - Batch-Normalization Layer
- Loss Functions
- Cost function
- Model Optimizers
- CNN architectures
- Transfer Learning
- Convergence & Hyper-Parameter Tuning
- Model Ensembling

## Regularization

- Overfitting
- Underfitting

## Recurrent Neural Networks (RNNs)

- Intro to Language Translation
  - RNNs
  - LSTM
    - Seq2seq using LSTM
    - BLEU Score
- Neural Machine Translation (NMT)
- Transformer & Attention Mechanism
- BERT models
- Conversational AI

## Advance Deep Learning

- GANs
- Autoencoders
- Model optimization & Quantization
- Data & Model Governance
- DL Model Life Cycle

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## Register for Deep Learning Training

 **Email:** [info@sentiligentacademy.com](mailto:info@sentiligentacademy.com)

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