iNeuron

# Deep Learning With Advanced NLP

# ABOUT US

We are on a mission to build a professional product-driven community around the globe where an individual can collaborate, learn, share and develop real- me use cases with trending technologies.

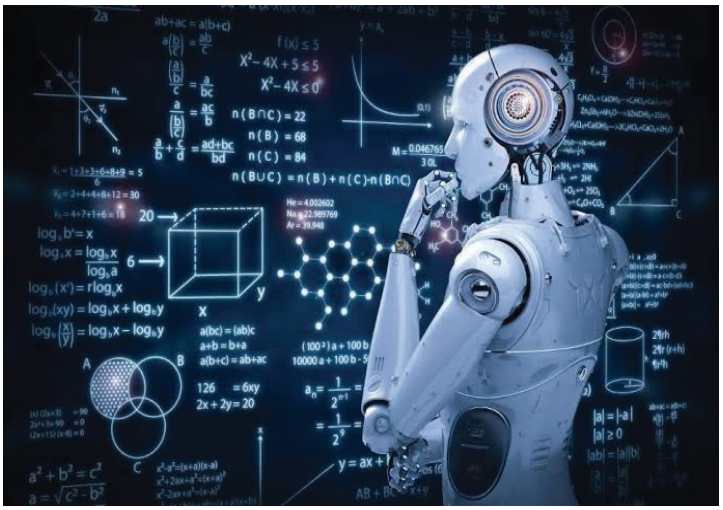
We at iNeuron Academy, believe in delivering a quality curriculum with a highly qualified professional team that worked as Senior Data Scien st, Deep Learning Engineer and AI researcher's in leading MNC'S around the globe. Our main focus is to provide a different way of exper se for freshers as well as professionals throughout our community which will make them work, learn, develop and grow in the compe ve industry.

We transform an individual from zero to having an enriching career by providing them with necessary support from our team of experts, while we create opportuni es for our candidates from our lifelong learning community who believe in sharing, learning and growing together.

We believe in providing best-quality training across the globe to enrich user experience from our blended learning approach which focuses on a different mode of exper se to learn, build and grow. iNeuron Academy offers cost-effec ve high-quality educa on and more focus is implied on building something unique for the industry with our world-wide commu- nity to work differently among the crowd.

# DEEP Learning

# Advanced NLP



# COURSE PRE-REQUISITE

**Python is Pre-requisite.**

**40 hours of Videos will be available in the Dashboard.**

# Introduction

## 1. Advance NLP with deep-learning overview.

- Computational Linguistic.
- History of NLP.
- Why NLP.
- Use of NLP.

## 2. TensorFlow Installation.

- Tensorflow Installation 2.0 .
- Tensorflow Installation 1.6 with virtual environment.
- TensorFlow 2.0 function.
- Tensorflow 2.0 neural network creation.
- Tensorflow  1.6 functions.
- Tensorflow 1.6 neural network and its functions.
- Keras Introduction.
- Keras in-depth with neural network creation.
- Mini project in Tensorflow.

## 3. Pytorch.

- Pytorch installation.
- Pyrotorch functional overview.
- Pytorch neural network creation.

## 4. Neural Network.

- A Simple Perception.
- Neural Network overview and its use case.
- Various Neural Network architect overview.
- Use case of Neural Network in NLP and computer vision.
- Multilayer Network.
- Loss Functions.
- The Learning Mechanism.
- Optimizers.
- Forward and Backward Propagation.
- Gradient Descent.

## 5. CNN overview

CNN definition and various CNN based architecture explanation end to end CNN network training and its deployment in Azure cloud performance tuning of CNN network.

## 6. Advance Computer Vision – Part 1.

- GAN.
- Generative Model Using GAN.
- BERT.
- Semi-Supervised learning using GAN.
- Restricted Boltzmann Machine (RBM) and Autocoders.
- CNN Architectures.
- LeNet-5.
- AlexNet.
- GoogleNet.
- VGGNet.
- ResNet.
- SSD.
- SSD lite.
- Faster R CNN.

## 7. Advance computer Vision – Part 2.

- SCNN.
- Masked R-CNN.
- Xception.
- SENet.
- Facenet.
- Implementing a ResNet – 34 CNN using Keras.
- Pretrained Models from Keras.
- Pretrained Models for Transfer Learning.

## 8. ChatBot.

- Intents and Entities.
- Fulfillment and integration.
- Chatbot using Microsoft bot builder and LUIS, development to Telegram, Skype.
- Chatbot using Google Dialogflow, deployment to Telegram, Skype.
- Chatbot using Amazon Lex, deployment to Telegram, Skype.
- Chatbot using RASA NLU, deployment to Telegram , Skype.
- Semantic Segmentation.

- Classification and Localisation.
- TensorFlow Object Detection.
- You Only Look Once (YOLO)

## 9. **Text processing**

- Importing Text.
- Web Scrapping.
- Text Processing.
- Understanding Regex.
- Text Normalisation.
- Word Count.
- Frequency Distribution.
- Text Annotation.
- Use of Anotator.
- String Tokenization.
- Annonator Creation.
- Sentence processing.
- Lemmatization in text processing.
- POS.
- Named Entity Recognition.
- Dependency Parsing in text.
- Sentimental Analysis.

## 10. **Spacy.**

- Spacy Overview.
- Spacy function.

- Spacy function implementation in text processing.
- POS tagging, challenges and acuracy.
- Entities and named entry Recognition, interpolation, Language models.

## 11. **NLP terminalogy**.

- Morphology and Diversity.
- Ambiguity and Paradigms.
- Structures and meanings.
- Lexical Knowledge, NetworknMetaphors and co-refrences.
- Lexical Ambiguity.
- Polysemy and homonymy.
- Conference Resolution.
- Anaphora and cataphora resolution.
- Multi-sentiential resolution.
- Humans and Ambiguity.
- Machines and ambiguity.
- Co-occurrence and distributional similarity.
- Similarity and relatedness.
- Knowledge graphs and repositories.

- Computational Linguistics.
- Word embeddings and co-occurrence vectors.
- Word Sim353 Dataset examples.
- Word2vec.
- Part of speech tagging.

## 12. RNN.

- Recurrent Neural Networks.
- Long Short Term Memory (LSTM)
- Bi LSTM.
- GRU implementation.
- Building a Story writer using character level RNN.

## 13. Attention Based model.

- Seq 2 Seq.
- Encoders and Decoders.
- Attention Mechanism.
- Attention Neural Networks
- Self Attention.

## 14. Hardware Setup – GPU.

- GPU Introduction.
- Various type of GPU configuration.
- GPU provider and its pricing.
- Paperspace GPU setup.
- Running model in GPU.

## 15. Transfer Learning in NLP.

- Introdution to transformers.
- BERT Model.
- ELMo Model.
- GPT1  Model.
- GPT2 Model.
- ALBERT Model.
- DistilBERT Model.

## 16. Mini NLP Project.

- Machine Translation.
- Abstractive Text Summarization.
- Keyword Spotting.
- Language Modelling.
- Document Summarization.

## 17. Deployment of Model and Performance tuning.

- Deep Learning Model Deployment Strategies.
- Deep Learning Project Architecture.
- Deep Learning Model Deployment Phase.
- Deep Learning Model retraining Phase.
- Deep Learning Model Deployment in AWS.
- Deep Learning Model Deployment in Azure.
- Deep Learning Model Deployment in GCloud.

## 18. NLP Transfer learning project with deployment and integration with UI.

- Machine Translation.
- Question Answering (like Chat – Bot)
- Sentiment Analysis IMDB.
- Text Search (with Synonyms).
- Text Classifications.
- Spelling Corrector.
- Entity (Person, Place or Brand) Recognition.
- Text Summarization.
- Text Similarity (Paraphrase).
- Topic Detection.
- Language Identification.
- Document Ranking.
- Fake News Detection.

- Plagiarism Checker.
- Text Sumamrisation extractive.
- Text Summarisation abstractive.

## 19. NLP end to end project with architecture and deployment.

- Movie Review using BERT.
- NER using BERT.
- POS BERT.
- Text generation gpt 2.
- Text summarisation xlnet.
- Abstract BERT.
- Machine Translation.
- NLP text summarisation custom keras/tensorflow.
- Language Identification.
- Text classification using fast BERT.
- Neuralcore.
- Detecting fake text using GLTR with BERT and GPT2.
- Fake News Detector using GPT2.
- Python Plagiarism Checker type a message.
- Question answering.

## 20. NLP project end to end with deployment in various cloud and UI integration.

- Topic Modeling.
- Word sense disambiguation.
- Text to speech.
- Keyword Spotting.
- Document Ranking.
- Text Search (with Synonyms)
- Language Modeling.
- Spam Detector.
- Image Captioning.

## 21. Computer Vision Project.

- Traffic Surveillance System.
- Object Identification.
- Object Tracking.
- Object Classification.
- TensorFlow Object Detection.
- Image to Text Processing.
- Speech to Speech analysis.
- Vision Based Attendence System.

# Career Service iNeuron.

- Resume discussion – 1st round.
- Resume Discussion – 2nd round.
- Devops infrastructure.
- Discussion on projects explanation in interview.
- Data scientist day to day work.
- Data scientist roles and responsibilites.
- Companies which hire a data scientist.
- Interview preparation.
- Career counseling.
- Job alerts.
- Project support.
- Learning support.


# THANK YOU