CLOUD x LAB

Deep Learning Specialization

90+ Hours of Training | 12+ Projects | Online Course

CloudxLab & Course

At Cloudxlab, we are building one of the best gamified learning environments to make technology learning fun and for life. More than 50,000 users across the world have been benefited by our signature courses on Machine Learning and Big Data. Our vision is to upskill people on high-end technologies like Deep Learning, Machine Learning, Big Data and make them employable.

Every domain of computing such as data analysis, software engineering, and artificial intelligence is going to be impacted by Machine Learning. Therefore,every engineer, researcher, manager or scientist would be expected to know Deep Learning.

So naturally, you are excited about Deep Learning and would love to dive into it. This course is designed for those who want to gain hands-on experience in solving real-life problems using deep learning. After finishing this course, you will find creative ways to apply your learning to your work.
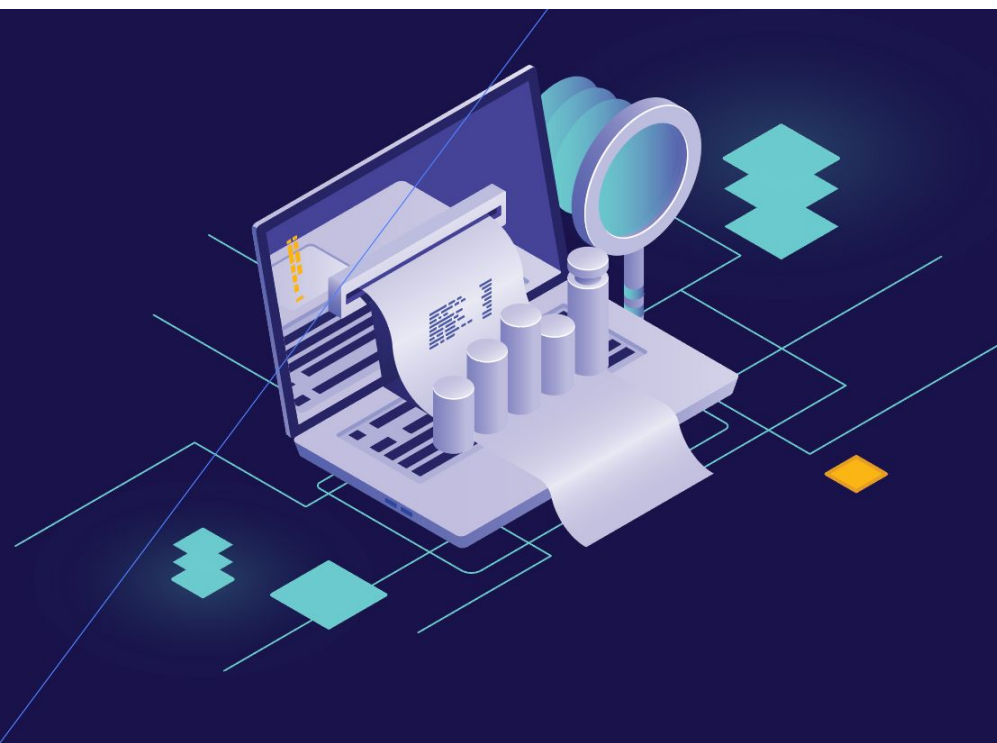
Sandeep Giri
Founder at CloudxLab

Why CloudxLab

Earn a Verified Certificate from CloudxLab

Learn Deep Learning from industry experts and become expert in Deep Learning domain

Online cloud lab for hands-on for real-world experience

Best-in-class support Throughout your learning journey

Lifetime course access

Work on real-world projects.

Interact with the international community of peers via the discussion forum.

Course Creators

Sandeep Giri

Founder at CloudxLab

Past: Amazon, InMobi, D.E.Shaw

Course Developer

Know More

Abhinav Singh

Co-Founder at CloudxLab

Past: Byjus

Course Developer

Know More

Jatin Shah

Ex-LinkedIn, Yahoo,

Yale CS Ph.D. IIT-B

Course Advisor

Know More

Praveen Pavithran

Co-Founder at Yatis

Past: YourCabs, Cypress Semiconductor

Course Advisor

Know More

Course Curriculum

Course 1: Python For Machine Learning

- Introduction to Linux
- Introduction to Python
- Hands-on using Jupyter on CloudxLab
- Overview of Linear Algebra
- Introduction to NumPy & Pandas

Course Curriculum

Course 2: Deep Learning

1. Introduction to Artificial Neural Networks

From Biological to Artificial Neurons, Implementing MLPs using Keras with TensorFlow Backend, Fine-Tuning Neural Network Hyperparameters

2. Training Deep Neural Networks

The Vanishing / Exploding Gradients Problems, Reusing Pretrained Layers, using Faster Optimizers, Avoiding Overfitting Through Regularization, Practical Guidelines to Train Deep Neural Networks

3. Custom Models and Training with Tensorflow

A Quick Tour of TensorFlow, Using TensorFlow like Numpy, Customizing Models and Training Algorithms, Tensorflow Functions and Graphs

4. Loading and Preprocessing Data with TensorFlow

Introduction to the Data API, TFRecord Format, Preprocessing the Input Features, TF Transform, The TensorFlow Datasets (TDFS) Projects

5. Convolutional Neural Networks

The Architecture of the Visual Cortex, Convolutional Layer, Pooling Layer, CNN Architectures, Classification with Keras, Transfer Learning with Keras, Object Detection, YOLO

6. Recurrent Neural Networks

Recurrent Neurons and Layers, Basic RNNs in TensorFlow, Training RNNs, Deep RNNs, Forecasting a Time Series, LSTM Cell, GRU Cell

Course Curriculum

Course 1: Deep Learning

7. Natural Language Processing

Introduction to Natural Language Processing, Creating a Quiz Using TextBlob, Finding Related Posts with scikit-learn, Generating Shakespearean Text Using Character RNN, Sentiment Analysis, Encoder-Decoder Network for Neural Machine Translation, Attention Mechanisms, Recent Innovations in Language Models

8. Autoencoders and GANs

Efficient Data Representations, Performing PCA with an Under Complete Linear Autoencoder, Stacked Autoencoders, Unsupervised Pre Training Using Stacked Autoencoders, Denoising Autoencoders, Sparse Autoencoders, Variational Autoencoders, Generative Adversarial Networks

9. Reinforcement Learning

Learning to Optimize Rewards, Policy Search, Introduction to OpenAI Gym, Neural Network Policies, Evaluating Actions: The Credit Assignment Problem, Policy Gradients, Markov Decision Processes, Temporal Difference Learning and Q-Learning, Deep Q-Learning Variants, The TF-Agents Library

Projects

- **Analyze Emails**

  Churn the mail activity from various individuals in an open source project development team.

- **Build an Image Classifier in Fashion MNIST dataset**

  Classify images from the Fashion MNIST dataset using Tensorflow 2, Matplotlib, and Python.

- **Training from Scratch vs Transfer Learning**

  Learn how to train a neural network from scratch to classify data using TensorFlow 2, and how to use the weights of an already trained model to achieve classification to another set of data.

- **Working with Custom Loss Function**

  Create a custom loss function in Keras with TensorFlow 2 backend.

- **Image Classification with Pre-trained Keras models**

  Learn how to access the pre-trained models(here we get pre-trained ResNet model) from Keras of TensorFlow 2 to classify images.

- **Build cats classifier using transfer learning**

  In this project, you will build a basic neural network to classify if a given image is of cat or not using transfer learning technique with Python and Keras.

- **Mask R-CNN with OpenCV for Object Detection**

  Learn how to read a pre-trained TensorFlow model for object detection using OpenCV.

- **Art Generation Project**

  Use TensorFlow 2 to generate an image that is an artistic blend of a content image and style image using Neural Style Transfer.

Projects

- **NYSE Stock Closing Price Prediction using TensorFlow 2 & Keras**
  Predict stock market closing prices for a firm using GRU, a state-of-art deep learning algorithm for sequential data, with Keras and Python.

- **Sentiment Analysis using IMDB dataset**
  Create a sentiment analysis model with the IMDB dataset using TensorFlow 2.

- **Autoencoders for Fashion MNIST**
  Learn how to practically implement the autoencoder, stacking an encoder and decoder using TensorFlow 2, and depict reconstructed output images by the autoencoder model using the Fashion MNIST dataset.

- **Deploy Image Classification Pre-trained Keras model using Flask**
  Learn how to deploy a deep learning model as a web application using the Flask framework.

Course Details and Fees —

Please find more information about the course and fees here:

https://cloudxlab.com/course/16/deep-learning

Our Esteemed Customers —

For Further Details —

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