

Deep Learning (with TensorFlow)

Simplilearn's Deep Learning Course with TensorFlow will let you build, teach and implement Artificial Neural Networks using Deep Learning techniques. As part of the Deep Learning Tensorflow training, you will master the concepts of Deep Learning, TensorFlow, Neural Networks, Convolutional Neural Networks, Recurrent Neural Networks to prepare you for the role of Deep Learning Scientist.



Mike Tamir

No. 1 AI & Machine Learning Influencer, Head of Data Science - Uber ATG

Named by Onalytica as the No.1 influencer in AI & Machine Learning space, Mike serves as Head of Data Science for Uber ATG self-driving engineering team and as UC Berkeley data science faculty.

Who can enroll for the program

There is an increasing demand for skilled Deep Learning Engineers across all industries, making this Deep Learning Course with TensorFlow training course well-suited for participants at the intermediate to advanced level of experience. We recommend this Deep learning online course particularly for the following professionals:



Software
engineers



Data
scientists



Analysts



Statisticians with
an interest in
Deep Learning

Deep Learning Outcomes

- You will grasp the concepts of deep learning clearly and implement algorithms.
- Build Deep Learning models in TensorFlow and interpret the results of Deep Learning models
- Understand the language and fundamentals of artificial neural networks
- Troubleshoot and improve Deep Learning models
- Build your own Deep Learning project
- You will be able to differentiate between machine learning, deep learning, and artificial intelligence

Program features

40+

hours of trainer led
virtual classrooms



Implement Neural
Networks in
TensorFlow



Build fully connected
deep neural networks



Become adept in
imposing Recurrent
Neural Networks
Model

Chapter level details:

Lesson 1: Introduction to Deep Learning

Topics:

- Define Deep Learning
- Neural Networks
- Deep Learning Applications

Lesson 2: Perceptron

Topics:

- What is a Perceptron
- Logic Gates with Perceptrons
- Activation Functions
- Sigmoid
- ReLU
- Softmax
- Hyperbolic Functions

Lesson 3: How to train ANNs

Topics:

- Introduction
- Perceptron Learning Rule
- Gradient Descent Rule
- Minimize Cost Function
- Tuning Learning Rate
- Stochastic vs Batch Gradient Descent

Lesson 4: Multi-layer ANN

Topics:

- Intro to MLP
- Forward propagation
- Minimize Cost Function
- Backpropagation
- Convergence in a neural net
- Overfitting and Capacity
- Hyperparameters in an ANN

Lesson 5: Introduction to TensorFlow

Topics:

- Intro to TensorFlow
- Computational Graph
- Key highlights
- Creating a Graph
- Regression example
- Gradient Descent
- Saving and Restoring Models
- Tf.layers API
- Keras-based networks
- TensorBoard

Lesson 6: Training Deep Neural Nets

Topics:

- Vanishing/Exploding Gradients
- Xavier Initialization
- Leaky ReLUs and ELUs
- Batch Normalization
- Transfer Learning
- Unsupervised Pre-training
- Optimizers
- Regularization

- ❑ Dropout

Lesson 7: Convolutional Neural Networks

Topics:

- ❑ Intro to CNNs
- ❑ Convolution Operation
- ❑ Kernel filter
- ❑ Feature Maps
- ❑ Pooling
- ❑ CNN Architecture
- ❑ Implement CNN in TensorFlow

Lesson 8: Recurrent Neural Networks

Topics:

- ❑ Intro to RNNs
 - ❑ Unfolded RNNs
 - ❑ Basic RNN Cell
 - ❑ Dynamic RNN
 - ❑ Training RNNs
 - ❑ Time-series predictions
 - ❑ LSTM
 - ❑ Word Embeddings
 - ❑ Seq2Seq Models
 - ❑ Implement RNN in TensorFlow
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Lesson 7: Other forms of Deep Learning

Topics:

- ❑ Autoencoders
- ❑ Reinforcement Learning (RL)
- ❑ Generative Adversarial Networks (GANs)



Founded in 2009, Simplilearn is one of the world's leading providers of online training for Digital Marketing, Cloud Computing, Project Management, Data Science, IT, Software Development, and many other emerging technologies. Based in San Francisco, California and Bangalore, India, Simplilearn has helped more than 500,000 students, professionals and companies across 200 countries get trained, upskilled, and acquire certifications.

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