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Deep Learning

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About Course

Deep learning is a type of machine learning and artificial intelligence (AI) that imitates the way humans gain certain types of knowledge. Deep learning is an important element of data science, which includes statistics and predictive modeling.

DEEP LEARNING

CURRICULUM

1 Introduction To Neural Network

- What is neural network..?
- How neural networks works?
- Gradient descent
- Stochastic Gradient descent
- Perceptron
- Multilayer Perceptron
- BackPropagation

2 Building Deep Learning Environment

- Overview of deep learning
- DL environment setup locally
- Installing Tensorflow
- Installing Keras
- Setting up a DL environment in the cloud
- AWS
- GCP
- Run Tensorflow program on AWS cloud plateform

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3 Tenserfow Basics

- Placeholders in Tensorflow
- Placeholders in Tensorflow
- Placeholders in Tensorflow
- Variables,
- Constant
- Computation graph
- Visualize graph with Tensor Board

4 Activation Functions

- What are activation functions?
- Sigmoid function
- Hyperbolic Tangent function
- ReLu -Rectified Linear units
- Softmax function

5 Training Neural Network For MNIST Dataset

- Exploring the MNIST dataset
- Defining the hyperparameters
- Model definition
- Building the training loop
- Overfitting and Underfitting
- Building Inference

6 Word Representation Using Word2vec

- Learning word vectors
- Loading all dependencies
- Preparing the text corpus
- defining our word2vec model
- Training the model
- Analyzing the model
- Visualizing the embedding space by plotting the model on tensorboard

7 Clasifying Images With Convolutional Neural Networks(CNN)

- Introduction to CNN
- Train a simple convolutional neural net
- Pooling layer in CNN
- Building ,training and evaluating our first CNN
- Model performance optimization

8 Popular CNN Model Architectures

- Introduction to Imagenet
- LeNet architecture
- AlexNet architecture
- VGGNet architecture
- ResNet architecture

9 Ntroduction To Recurrent Neural Networks(RNN)

- What are Recurrent Neural Networks (RNNs)?
- Understanding a Recurrent Neuron in Detail
- Long Short-Term Memory(LSTM)
- Back propagation Through Time(BPTT)
- Implementation of RNN in Keras

10 Sequence-To-Sequence Models For Building Chatbot

11 HandWritten Digits And Letters Classification Using CNN

- Code Implementation
- Importing all of the dependencies
- Defining the hyperparameters
- Building a simple deep neural network
- Convolution in keras
- Pooling
- Dropout technique
- Data augmentation

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