

# DEEP LEARNING FOUNDATION CERTIFICATE

IN THE ALGORITHM ECONOMY, ARTIFICIAL INTELLIGENCE  
IS THE NEW ELECTRICITY.

! Deep Learning is the fastest-growing field in Machine Learning. it uses many-layered Deep Neural Networks (DNNs) to make sense of data such as images, sound and text, and enable many practical machine assists.

i The market is expected to be worth USD 1772.9 Million by 2022, growing at a CAGR of 65.3% between 2016 and 2022. This signals a burgeoning adoption of deep learning across various industries such as automotive, healthcare, finance and more [Source : MarketandMarkets™](#)

# DEEP LEARNING FOUNDATION CERTIFICATE

Duration: 3 days instructor-led course

## Course Overview

Deep Learning is the fastest-growing field in Machine Learning and highly crucial for Artificial Intelligence, using many-layered Deep Neural Networks (DNNs) to make sense of data and enable many practical machine assists.

This course introduces students to Deep Learning as a subject within advanced Artificial Intelligence and provides several real-life problem sets that can be solved using Deep Learning neural networks.

### **Required Software :**

Anaconda for Python (version 3.x) Optionally Sublime Text

## Prerequisites

Basic high school mathematics

## Who Should Attend

Students, Data Analysts, Developers, Business Owners, Engineers, Product Architects, Entrepreneurs or any individual who wishes to leverage on powerful Deep Learning tools to add value, wherever they are.

## Exam Format

Participant will receive a Beginner Level certificate from NVIDIA Deep Learning Institute once you have completed the 3-day programme inclusive of participation in the 1-day NVIDIA Deep Learning Lab.

## Learning Objective

- Understand the intuition behind Artificial Neural Networks
- Understand the intuition behind Convolutional Neural Networks
- Apply Artificial Neural Networks in practice
- Apply Convolutional Neural Networks in practice
- Understand the intuition behind Recurrent Neural Networks
- Apply Recurrent Neural Networks in practice

# Course Outline

## Introduction Level - Day 1 - 2

### Day 1

#### What is Deep Learning and what are Neural Networks?

- Deep Learning as a branch of AI
- Neural networks and their history and relationship to neurons
- Creating a neural network in Python

#### Artificial Neural Networks (ANN) Intuition

- Understanding the neuron and neuroscience
- The activation function (utility function or loss function)
- How do NN's work?
- How do NN's learn?
- Gradient descent
- Stochastic Gradient descent
- Backpropagation

#### Building an ANN

- Getting the python libraries
- Constructing ANN
- Using the bank customer churn dataset
- Predicting if customer will leave or not

#### Evaluating Performance of an ANN

- Evaluating the ANN
- Improving the ANN
- Tuning the ANN

#### Hands-On Exercise (60 min)

- Participants will be asked to build the ANN from the previous exercise
- Participants will be asked to improve the accuracy of their ANN

#### Convolutional Neural Networks (CNN) Intuition (60 min)

- What are CNN's?
- Convolution operation
- ReLU Layer
- Pooling
- Flattening
- Full Connection
- Softmax and Cross-entropy

### Day 2

#### Evaluating Performance of a CNN (60 min)

- Evaluating the CNN
- Improving the CNN
- Tuning the CNN

#### Recurrent Neural Networks (RNN) Intuition (60 min)

- What are RNN's?
- Vanishing Gradient problem
- Practical intuition
- LSTM variations
- LSTMs

#### Evaluating Performance of a RNN (60 min)

- Evaluating the RNN
- Improving the RNN
- Tuning the RNN

#### Hands-On Exercise (60 min)

- Participants will be asked to build the CNN from the previous exercise
- Participants will be asked to improve the accuracy of their CNN

#### Building a RNN (60 min)

- Getting the python libraries
- Constructing RNN
- Using the stock prediction dataset
- Predicting stock price

#### Hands-On Exercise (60 min)

- Participants will be asked to build the RNN from the previous exercise
- Participants will be asked to improve the accuracy of their RNN

# Testimonials

Hear what Our Students Have to Say



If you would like to know about deep learning using Tensorflow, this is the class to attend.

**Mohd Izzudin bin Razali, Universiti Teknologi Malaysia**

This workshop is good for those who still new in deep learning field and want strong fundamental on this field.

**Siti Noorain Binti Mohmad Yousoff, TT Vision Holdings Berhad**

The trainer is very good, he knows deeply about the subject and topics and answered our questions well.

**Nur Shafranisa binti Shaharum, Universiti Putra Malaysia**

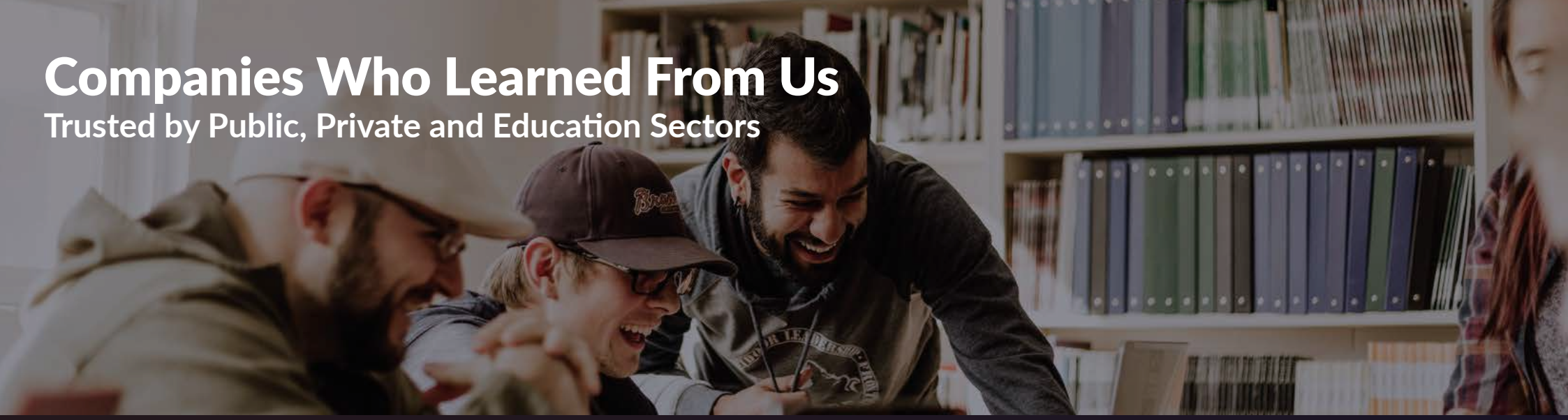
A comprehensive and useful training.

**Wong Sai Yien, MACRO KIOSK BERHAD**



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