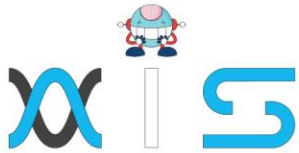


DEEP LEARNING

Course Outline





Program Overview

The Advanced PPC Course will Deep learning is one of the newest technological advances in the fields of artificial intelligence and machine learning. This Deep Learning with Keras and TensorFlow course is designed to help you master deep learning techniques and enables you to build deep learning models using the Keras and TensorFlow frameworks. These frameworks are used in deep neural networks and machine learning research, which in turn contributes to the development and implementation of artificial neural networks

Program Features

- 10+ hours of high-quality self-learning content
- 24 hours of instructor-led classes
- 34 hours of blending learning
- One industry-based course-end project Interactive learning with Jupyter notebooks integrated labs
- Dedicated mentoring session from faculty of industry experts

Delivery Mode

Blended - Online self-paced learning and live virtual classroom

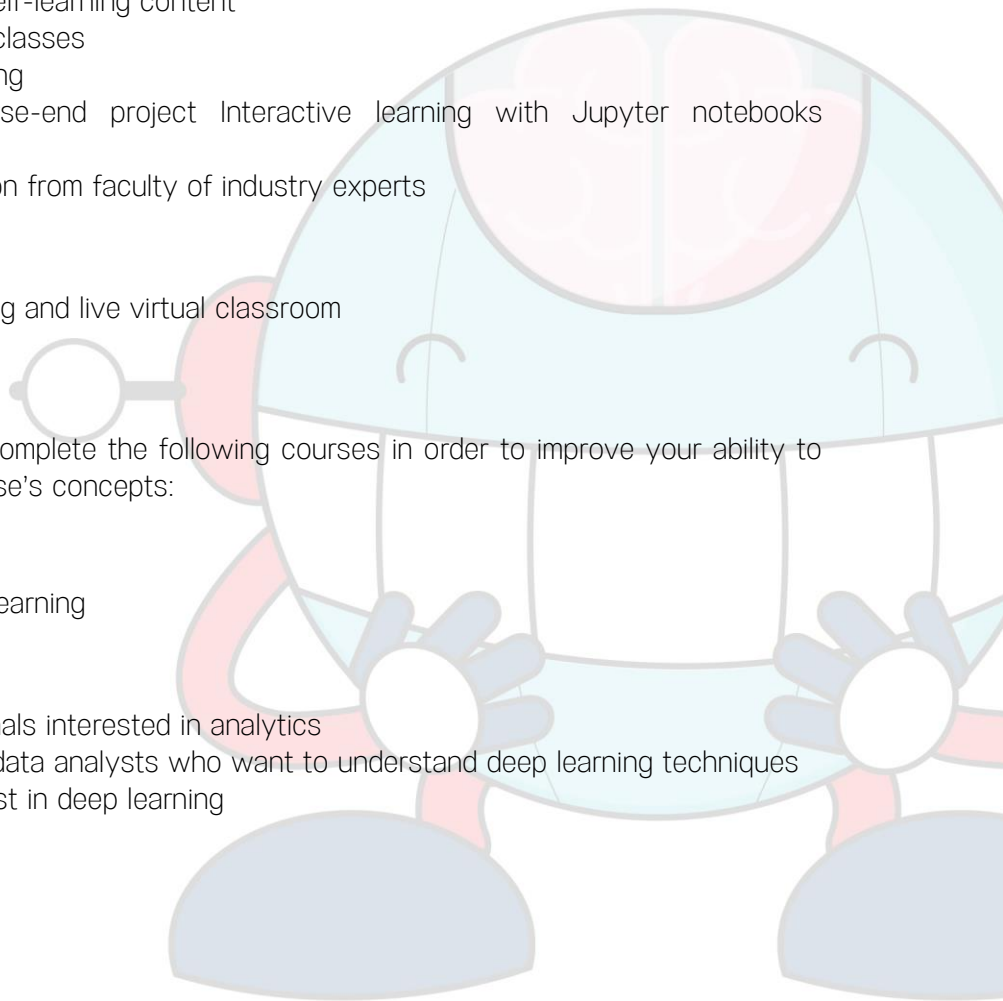
Prerequisites

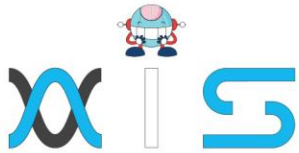
It is recommended that you first complete the following courses in order to improve your ability to understand the deep learning course's concepts:

- Programs Essentials
- Statistics Essentials
- Concepts about Machine Learning

Target Audience

- Software and IT professionals interested in analytics
- Data scientists Business/ data analysts who want to understand deep learning techniques
- Statisticians with an interest in deep learning





Key Learning Outcomes

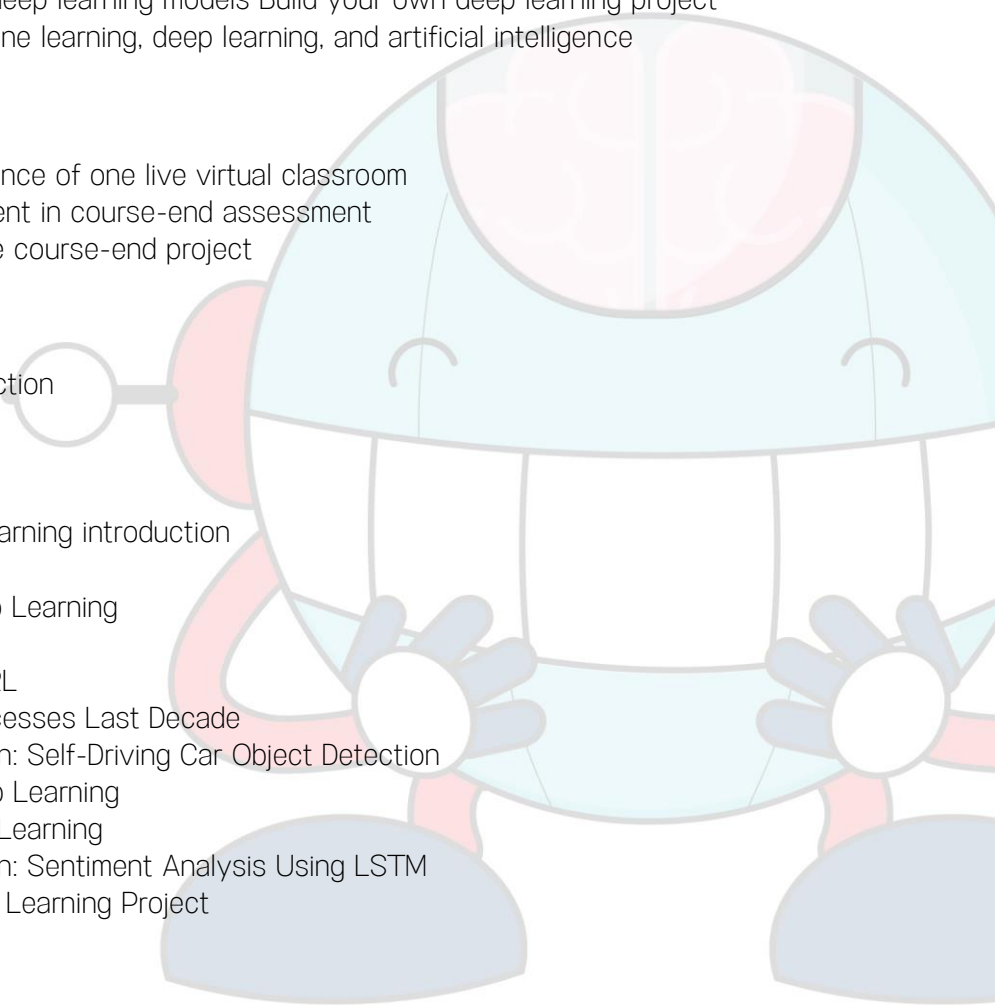
- When you complete this deep learning course, you will be able to accomplish the following:
- Understand the concepts of Keras and Tensor
- Flow, its main functions, operations, and the execution pipeline
- Implement deep learning algorithms, understand neural networks, and traverse the layers of data abstraction
- Master and comprehend advanced topics such as convolutional neural networks, recurrent neural networks, training deep networks, and high-level interfaces
- Build deep learning models using Keras and TensorFlow frameworks and interpret the results
- Understand the language and fundamental concepts of artificial neural networks, application of autoencoders, and Pytorch and its elements
- Troubleshoot and improve deep learning models Build your own deep learning project
- Differentiate between machine learning, deep learning, and artificial intelligence

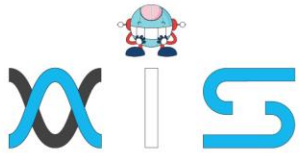
Certification Details & Criteria:

- At least 85 percent attendance of one live virtual classroom
- A score of at least 75 percent in course-end assessment
- Successful evaluation in the course-end project
-

Course Introduction

- **Lesson 01** - Course Introduction
 - Introduction
- **Lesson 02** - AI and Deep learning introduction
 - What is AI and Deep Learning
 - Brief History of AI
 - Recap: SL, UL and RL
 - Deep Learning: Successes Last Decade
 - Demo and Discussion: Self-Driving Car Object Detection
 - Applications of Deep Learning
 - Challenges of Deep Learning
 - Demo and Discussion: Sentiment Analysis Using LSTM
 - Full Cycle of a Deep Learning Project
 - Key Takeaways
 - Knowledge Check



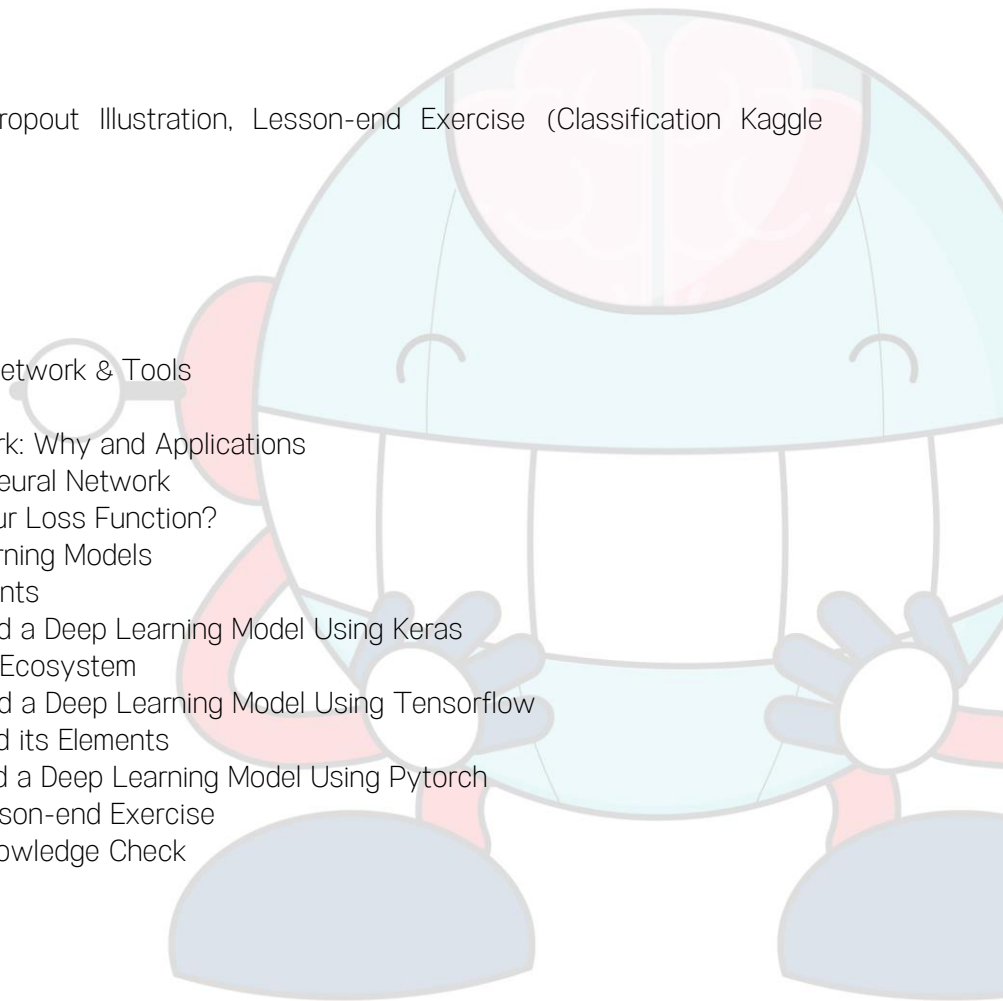


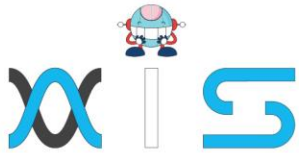
- **Lesson 03** - Artificial Neural Network

- Biological Neuron Vs Perceptron
- Shallow Neural Network
- Training a Perceptron
- Demo Code #1: Perceptron (Linear Classification)
- Backpropagation
- Role of Activation Functions and Backpropagation
- Demo Code #2: Activation Function Demo Code
- #3: Backprop Illustration
- Optimization
- Regularization
- Dropout layer
- Demo Code #4: Dropout Illustration, Lesson-end Exercise (Classification Kaggle Dataset)
- Key Takeaways
- Knowledge Check
- Lesson-end Project

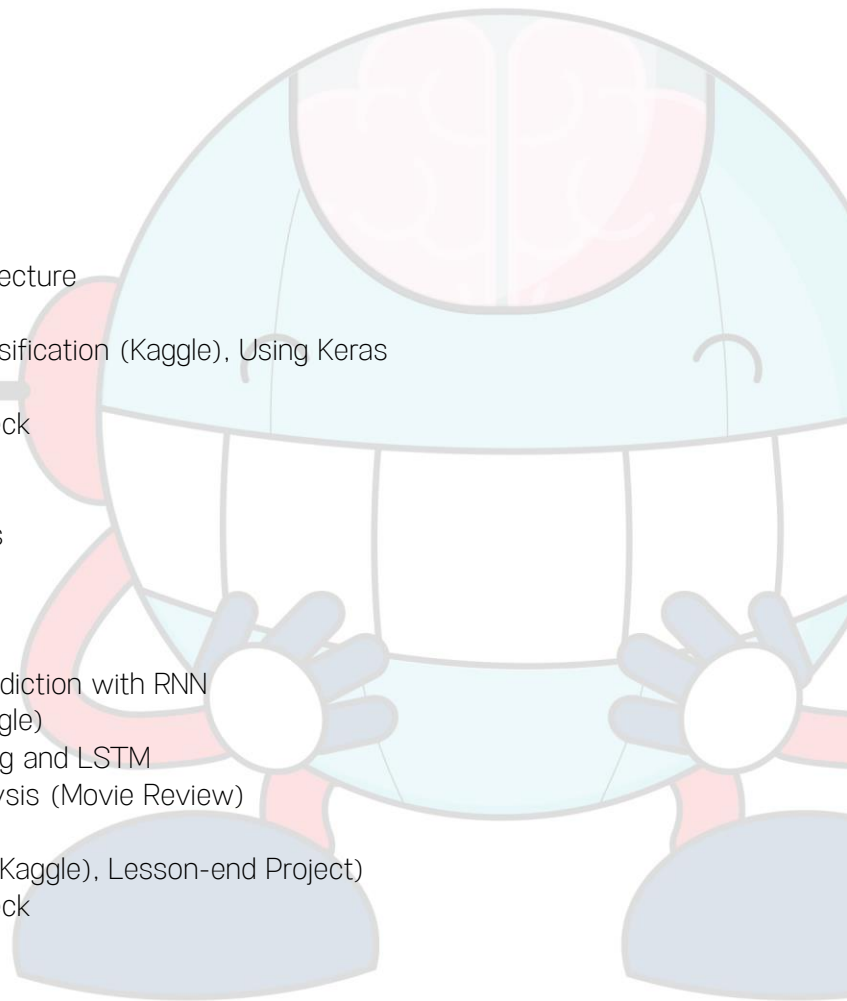
- **Lesson 04** - Deep Neural Network & Tools

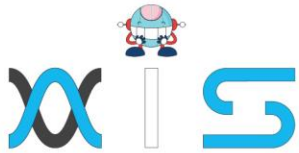
- Deep Neural Network: Why and Applications
- Designing a Deep Neural Network
- How to Choose Your Loss Function?
- Tools for Deep Learning Models
- Keras and its Elements
- Demo Code #5: Build a Deep Learning Model Using Keras
- Tensorflow and Its Ecosystem
- Demo Code #6: Build a Deep Learning Model Using Tensorflow
- TFlern Pytorch and its Elements
- Demo Code #7: Build a Deep Learning Model Using Pytorch
- Demo Code #8: Lesson-end Exercise
- Key Takeaways Knowledge Check
- Lesson-end Project



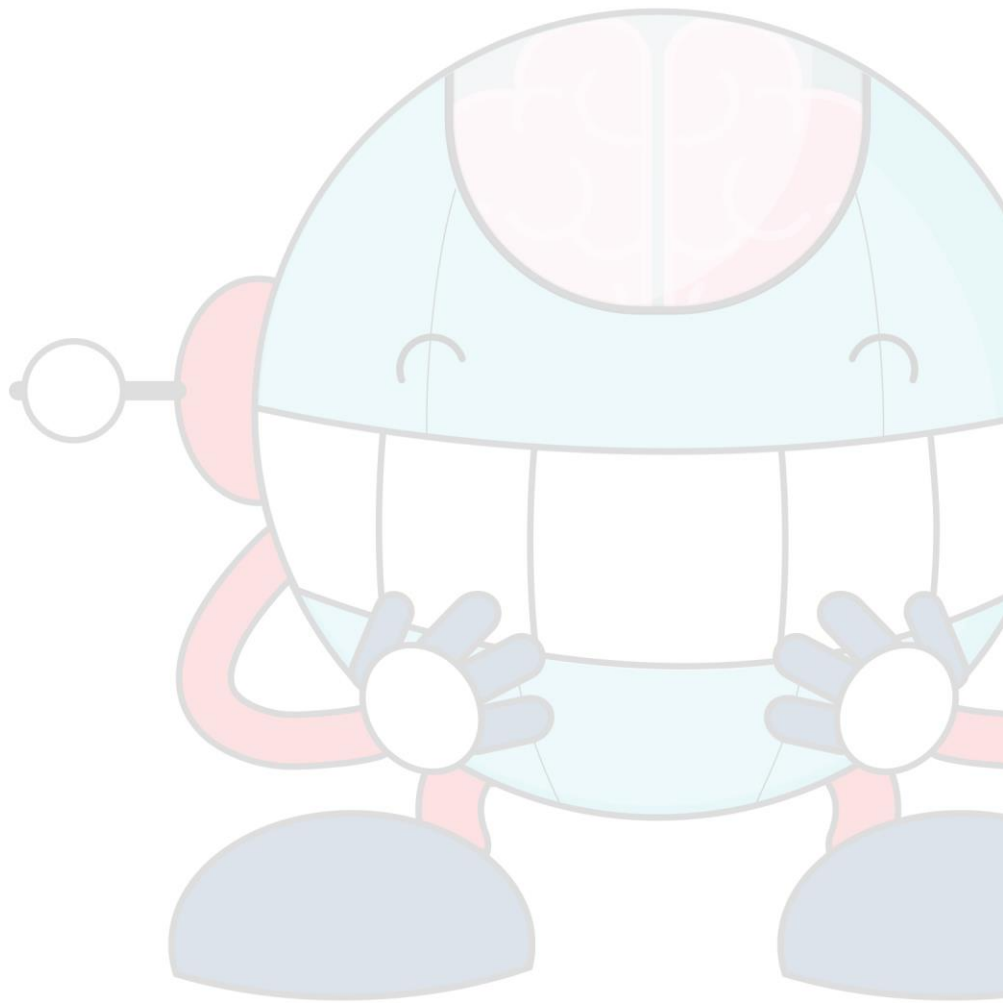


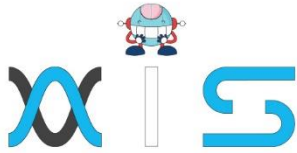
- **Lesson 05** - Deep Neural Net optimization, tuning, interpretability
 - Optimization Algorithms
 - SGD, Momentum, NAG, Adagrad, Adadelata , RMSprop, Adam
 - Demo code #9: MNIST Dataset
 - Batch Normalization
 - Demo Code #10
 - Exploding and Vanishing Gradients
 - Hyperparameter Tuning
 - Demo Code #11
 - Interpretability
 - Demo Code#12: MNIST– Lesson-end Project with Interpretability Lessons
 - Width vs Depth
 - Key Takeaways
 - Knowledge Check
 - Lesson-end Project
- **Lesson 06** - Convolutional Neural Net
 - Success and History
 - CNN Network Design and Architecture
 - Demo Code #13: Keras Demo
 - Code #14: Two Image Type Classification (Kaggle), Using Keras
 - Deep Convolutional Models
 - Key Takeaways Knowledge Check
 - Lesson-end Project
- **Lesson 07** - Recurrent Neural Networks
 - Sequence Data
 - Sense of Time RNN Introduction
 - Demo Code #15: Share Price Prediction with RNN
 - LSTM (Retail Sales Dataset Kaggle)
 - Demo Code #16: Word Embedding and LSTM
 - Demo Code #17: Sentiment Analysis (Movie Review)
 - GRUs LSTM vs GRUs
 - Demo Code #18: Movie Review (Kaggle), Lesson-end Project
 - Key Takeaways Knowledge Check
 - Lesson-end Project





- [Lesson 08](#) - Autoencoders Introduction to Autoencoders
 - Applications of Autoencoders
 - Autoencoder for Anomaly Detection
 - Demo Code #19: Autoencoder Model for MNIST
 - Data Key Takeaways
 - Knowledge Check
 - Lesson-end Project





AIS

With the rising demand in scalable technology, AIS provides tailored goal-setting based on your organization's needs and expectations. With products geared towards the growing needs of your organization's customers and employees, AIS has innovative and value-driven solutions.

Learning Partners



SAS Management, Inc.

SAS Management, Inc. has been a leader in the training, certification and consulting services industry in the Philippines. With offices in Makati, Ortigas and Cebu, Philippines, the company has been the top training and consulting company for over 9 years. In its years of existence, it has provided certificates to over 100,000 professionals including 10,000 participants in the 160+ courses that have been conducted just during the 2020-2021 pandemic alone. The most sought-after courses being offered are ITIL, Project Management Professional (PMP)®, COBIT 5, Six Sigma Yellow Belt, Six Sigma Green Belt, PRINCE2, and organizational skills, among others.



Simplilearn

Simplilearn, based in California and India, is the world's #1 online bootcamp and one of the world's the leading certification and training providers. Simplilearn trained over 2,000,000 professionals with 2,000+ trainers and provides over 400 different courses.

Technology Partner



Freshworks

With over 40,000 customers, Freshworks is a business solutions software provider with products ranging from IT helpdesk and service desk, customer relationship management, live chat, marketing automation, phone system, and HR.

Partners & Affiliates

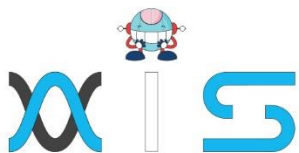


PECB

SDI Service Desk Institute

EC-COUNCIL





The program presented, as well as a wide range of programs are products of the partnership of AIS, SAS Management, Inc., and Simplilearn. With a common goal of providing the best practice of facilitating learning with an array of choices available in the online platform in this time of digitization.

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