Introduction to Tensorflow and Keras

for

Artificial Intelligence and Deep Learning

Training Programme
by
Faculty of Engineering
Multimedia University

Overview

Tensorflow is a numerical computation library designed for implementation of algorithm related to artificial intelligence (AI). It is developed by Google for their research in AI and its application in their vast product. Keras is high level application programming interface (API) that access the low level functions in Tensorflow library. This allows Tensorflow to be easily used for implementing various neural network models with just a few lines of code via Keras high level function. This course provides a concise and hands on introduction to artificial intelligence and specifically focus on deep learning techniques. The deep learning theory is supplemented by programming examples implemented with Keras. This is to enable students to appreciate the practical aspect of deep learning in real world application. Student will have a chance to integrate all the theory they have learned to solve the challenging problem of image classification in a mini project.

Objective

At the end of the session, participants will be able to:

1. Understand and apply the Keras application programming interface (API) to implement common neural network models.
2. Apply the standard pipeline for developing deep learning model
3. Design high performance deep convolutional neural network with transfer learning

Target Audience

Anybody with some programming background in Python should be able to attend this course.

Prerequisite

Basic Python programming knowledge.

Training Methodology

Classroom short lecture, code demonstrations, hands-on exercises and mini project.

Course Duration

2 days

Content/Outline

Day 1

Session 1: Introduction to Artificial Intelligence and Deep Learning

- Relationship between artificial intelligence, machine learning and deep learning
- Application of deep learning
- Types of machine learning and deep learning
- Google Colab

Session 2: Tensorflow 2.0 and Keras

- Tensorflow 2.0 (TF2)
- Keras API for TF2
- Operations on tensor

Session 3: Artificial Neural Network (ANN)

- Theory of ANN
- Data preparation
- Model development
- Training the model
- Model evaluation

Day 2

Session 4: Convolutional Neural Network (CNN)

- Theory of CNN
- Data pre-processing
- Developing CNN model
- Parameter for model setup and training
- Training and evaluation of CNN model

Session 5: Transfer Learning

- Introduction to transfer learning
- Customize pre-trained model
- Transfer learning techniques

- Fine tuning

Mini Project : Classification of animal images with deep convolutional network with transfer learning

Course Instructors

Mr. Haris Lye

Haris is an experienced lecturer with a strong interest in teaching and implementing cognitive computing systems. He is the technical leader in several high impact projects where he applies deep learning to solve many challenging problems that include face image retrieval, video, audio censorship and wearable camera computing. Haris has been lecturing at the Engineering faculty of Multimedia University Cyberjaya campus since 2005. He has obtained the Bachelor of Electronic and Electrical Engineering (Universiti Sains Malaysia) and a Master of Science in information technology from Multimedia University. His research mostly focuses on the practical application of deep learning in the computer vision and electronic engineering domain.

Administrative Details

Programme Logistics

Duration: 2 days

Date:
Please refer to the updated dates at https://www.mmu.edu.my/foe/short-courses/

Registration deadline:
Please refer to the updated dates at https://www.mmu.edu.my/foe/short-courses/

Your Investment

Condition		Price per Pax
Regular Fee	Students / MMU Alumni	RM250
	Public	RM400
	Public (Group >5 pax)	RM300
Early Bird Fee	Students / MMU Alumni	RM150
	Public	RM300
	Public (Group >5 pax)	N/A

Method of Payment

Please make payment via bank transfer only. Account details is as below:

Account name: Unitele Multimedia Sdn Bhd
Account number: 86-0090180-2
Bank: CIMB Islamic Bank Berhad

Payment must be made by the registration deadline.

Refund and Cancellation

Any refunds will be processed in 60 days. Should there be any cancellation, it may be due to the organizer not getting the minimum participants or the participant failing to attend the workshop due to unavoidable reason.

Disclaimer

Faculty of Engineering, Multimedia University reserves the right to change the instructors, date and to vary/cancel the programme should unavoidable circumstances arise. All effort will be taken to inform participants of the changes. Upon submission of the registration form, you are deemed to have read and accepted the terms.

Enquiries

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Registration Form

To register, please visit this link: https://forms.gle/bzpeUJtt31xJF3er6