MULTIMEDIA UNIVERSITY

Introduction to Pytorch for Deep Learning

Training Programme

by

Faculty of Engineering

Multimedia University

Overview

Pytorch is a programming library in Python for the experiment and development of machine learning and neural network algorithms. It is developed by Facebook and is one of the most popular deep learning frameworks. This absolute beginner course provides a hands-on introduction to deep learning concepts and its implementation techniques. The deep learning theory is supplemented by programming examples implemented with Pytorch. This is to enable students to appreciate the practical aspect of deep learning in real world application. In the guided project, students will build a working program to predict the presence of COVID-19 disease from the chest x-ray images. The project tasks include dataset preparation, data pre-processing, training the convolutional neural network and evaluating its performance.

Objective

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

1. Understand and apply the Pytorch 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 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: Introduction to Tensor
- Tensor fundamentals
- Tensor representation
- 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 for image classification
- Parameter setup for model training
- Training and evaluation of CNN model
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Session 5: Transfer Learning for CNN
- Introduction to transfer learning
- Using pre-trained model
- Transfer learning technique
- Fine tuning CNN on custom dataset

Mini Project

Mini Project: Prediction of COVID-19 disease with chest x-ray images. The transfer learning and fine tuning method will be applied in this image classification problem.

Course Instructors

Mr. Mohd 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

Dates, registration deadline and registration form:
Please refer to: https://www.mmu.edu.my/foe/short-courses/

Your Investment

Condition		Price per Pax
Regular Fee	Students / MMU Alumni	RM600
	Public	RM1000
	Public (Group >5 pax)	RM900
	IEM/IEEE Member	RM900
Early Bird Fee	Students / MMU Alumni	RM400
	Public	RM800
	Public (Group >5 pax)	N/A
	IEM/IEEE Member	RM700

Method of Payment

Type of Payment	Method	Details
Local Transaction / Payment within Malaysia	Online Payment with JomPay	- To get started, login to any preferred internet banking. - Look for JomPay to begin the payment process. - Enter Ref 1 & Ref 2. **Biller Code : 22202** **Ref-1 :** \<Participant IC/Passport\> **Ref-2 :** *Event Name** **JomPAY** online at Internet and Mobile Banking with your Current, Savings or Credit Card account ** Ref. 2: FOEPytorch*
		- To get started, go to **MMU website** (**https://www.mmu.edu.my/**) > **Admission > Financial Info > Payment Channel > Non Student** ; • E-Payment To begin the payment process, please click Student or Non Students **VISA** mastercard ◊**FPX** Student | Non-Student or scan the QR code below to begin the process: **SCAN ME** - Choose Category: **Public Training** - Workshop Name - Choose Your Participant Type: ✓ STUDEN (MMU, IEEE, IEM, Other Higher Learning Institution) ✓ PUBLIC ✓ GROUP (Group > 5 Pax) ✓ IEEE/M (IEEE/IEM Members)

Type of Payment	Method	Details
International Payment / Payment outside Malaysia	Online payment with Flywire ≠flywire	• To get started, go to mmulanding.flywire.com; or scan the QR code to begin the payment process: SCAN ME • Choose Conference for Non-students related

Note:

Please submit the proof of payment to organizer for clearance updating purposes within 2 working days.

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

Dr. Zubaida Yusoff: zubaida@mmu.edu.my
Ms. Sherry Dalilla Abd. Rahim: dalilla.rahim@mmu.edu.my