Introduction to Digital Pathology

Training Programme
by
Faculty of Engineering
Multimedia University

Overview

Pathology is a branch of medical science primarily concerning the examination of organs, tissues, and bodily fluids in order to make a diagnosis of disease, especially cancers. While imaging tests, such as X-rays, CT and MRI are helpful in detecting masses or areas of abnormality, they alone cannot differentiate cancerous cells from non-cancerous cells. For most types of cancer, pathology remains the 'gold standard' for the diagnosis of cancer. Digital pathology is the management and interpretation of pathology information in a digital environment that enables better, faster and cheaper diagnosis, prognosis and prediction of cancer and other important diseases. With the advent of whole slide imaging, the field of digital pathology has gained great attention and is currently regarded as one of the most promising avenues of diagnostic medicine.

The current approach in manual diagnosis is very tedious, as well as susceptible to sampling bias, subjective interpretation, and human errors. Incorporating machine learning and artificial intelligence in the process will reduce the pathologists' workload significantly, at the same time elevating the standard of healthcare. In this course we will introduce the fundamental knowledge of clinical pathology such as slide preparation, different staining, analogue pathological workflow, and cancer diagnosis. Then we move on to digital pathology where we will discuss the digital slide system and digital workflow, followed by computer-aided detection and diagnosis in digital pathology. Finally, we will discuss the challenges and opportunities in applying artificial intelligence/machine learning into digital pathology.

Objective

To provide an introductory course to digital pathology and medical image analysis.

Target Audience

UG students, PG students, researchers, technician, engineers, pathologists.

Prerequisite

None.

Training Methodology

Classroom.

Course Duration

1 day.

Content/Outline

Part I (Introduction to Pathology)

Part II (Digital Pathology)

Part III (Computer-Aided Detection and Diagnosis)

Part IV (Challenges and Opportunities in Digital Pathology)

Course Instructors

Prof. Ir. Dr. Mohammad Faizal Ahmad Fauzi

Mohammad Faizal Ahmad Fauzi received the B.Eng. degree in Electrical and Electronic Engineering from Imperial College, London, UK in 1999, and the Ph.D. degree in Electronics and Computer Science from University of Southampton, Southampton, UK in 2004. He is currently a Professor at the Faculty of Engineering, Multimedia University, and the Head for the MMU-UKM-IMU IMU Artificial Intelligence for Digital Pathology (AI4DP) Research Excellence Consortium. His main research interests are in the area of signal and image processing, pattern recognition, computer vision and medical imaging, He has published more than 100 journal and conference articles to date, and delivered keynote and invited speeches at many international conferences. From May 2013 to June 2014, and April to June 2017, he was attached to the Ohio State University Wexner Medical Center as a visiting scholar where he worked on cancer diagnosis and prognosis in digital pathology. Mohammad Faizal is a Chartered Engineer (CEng) with the Engineering Council UK, and a Professional Engineer (PEng) with the Board of Engineers Malaysia. He is also a Senior Member of the Institute of Electrical and Electronics Engineers (IEEE) which he volunteers actively. He is currently serving as the Executive Committee for IEEE Region 10 (Asia Pacific), as well as the Advisor for IEEE Malaysia Section and IEEE Signal Processing Malaysia chapter. He is a recipient of many awards such as the 2020 IEEE SPS Meritorious Regional/Chapter Service Award and the 2021 IEEE Region 10 Outstanding Volunteer Award.

Administrative Details

Programme Logistics

Duration: 1 day

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	RM350
	Public	RM600
	Public (Group >5 pax)	RM500
	IEM/IEEE Members	RM500
Early Bird Fee	Students / MMU Alumni	RM250
	Public	RM500
	Public (Group >5 pax)	N/A
	IEM/IEEE Members	RM400

Method of Payment

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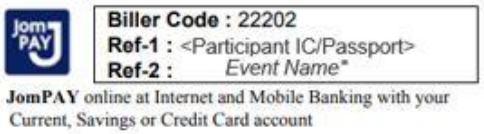
<tr><th>Type of Payment</th><th>Method</th><th>Details</th></tr>
<tr><td rowspan="2">Local Transaction / Payment within Malaysia</td><td>Online Payment with JomPay</td><td>

To get started, login to any preferred internet banking.
Look for JomPay to begin the payment process.
Enter Ref 1 & Ref 2.



* Ref. 2: FOELightning
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To get started, go to MMU website (https://www.mmu.edu.my/) > Admission > Financial Info > Payment Channel > Non Student ;

or scan the QR code below to begin the process:


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)

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Type of Payment	Method	Details
International Payment / Payment outside Malaysia	Online payment with 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

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