IECBES 2026 Workshop

Workshop 1:
From Multimodal Biosignals to Personalised Digital Twins: A Hands-On Workshop on Explainable AI for Rehabilitation and Remote Health Monitoring

Duration: half day

Venue: UNiKL, Jalan Sultan Ismail, Kuala Lumpur

Date: 11 Dec 2026

Time: 8.30 am – 1 pm

Workshop fee: normal: RM 200 per person

Early bird: RM 180 per person (deadline 31 Oct 2026)

Group registration (min 5 participants): RM 150 per person

Synopsis:

Biomedical engineering is rapidly progressing from isolated physiological measurements towards connected, personalised and intelligent healthcare ecosystems. Technologies such as wearable biosensors, multimodal signal acquisition, artificial intelligence, digital twins and remote monitoring can support earlier detection, personalised rehabilitation and continuity of care. This workshop will provide participants with a practical, end-to-end understanding of how multimodal biosignals can be transformed into reliable and explainable digital-health intelligence. Participants will work with physiological signals such as ECG, EMG, EEG and PPG data and examine how these signals may be integrated into rehabilitation, remote monitoring and patient-specific digital-twin applications. The workshop will also introduce the responsible use of AI and bounded agentic workflows in healthcare. Emphasis will be placed on human-in-the-loop decision-making, explainability, data provenance, patient safety and the distinction between research-grade estimation and clinical diagnosis.

Speaker: **Assoc. Prof. Ts. Dr. Kalaivani Chellappan**



Assoc. Prof. Ts. Dr. Kalaivani Chellappan is an Associate Professor in the Department of Electrical, Electronic and Systems Engineering, Faculty of Engineering and Built Environment, Universiti Kebangsaan Malaysia. She specialises in healthcare engineering, with research interests spanning cardiovascular engineering modelling, biomedical signal processing, Internet of Things in healthcare, data modelling and analytics, artificial intelligence and integrated healthcare systems. She holds a Bachelor of Engineering in Electrical and Electronic Engineering from Universiti Sains Malaysia, a Master of Computer Science from Universiti Kebangsaan Malaysia and a PhD in Engineering from Universiti Kebangsaan Malaysia. Her professional experience of more than 30 years encompasses engineering, information technology, education, research, innovation and human-capacity development in both private and public sectors. Her research has included EEG-based neurological analysis, EMG-based stroke assessment, non-invasive vascular-function monitoring, wearable and mobile healthcare technologies, auditory-cognitive rehabilitation, medication management and virtual diagnostic systems. She has led multidisciplinary and industry-linked projects involving machine learning for acute stroke triage, non-invasive vascular assessment, virtual cognitive training and healthcare-system integration. Her distinctive contribution lies in connecting physiological measurement and computational intelligence with practical, human-centred healthcare delivery. She is also actively involved in teaching, professional training, mentoring, innovation development and university–industry collaboration.

For further information, please contact: info@iecbes.org

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