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UNIVERSITI TEKNIKAL MALAYSIA MELAKA
25 TAHUN UTeM 2000 - 2025

TCCE-2025

International Conference

ON TRENDS IN COMPUTATIONAL AND COGNITIVE ENGINEERING

12 - 13 Nov 2025

Main Campus,
Faculty of Electronics and Computer Technology and Engineering,
Universiti Teknikal Malaysia Melaka

In Collaboration with

FTKEK FAKULTI TEKNOLOGI DAN KEJURUTERAAN ELEKTRONIK DAN KOMPUTER
FAIX UNIVERSITI TEKNIKAL MALAYSIA MELAKA
AMITY UNIVERSITY RAJASTHAN
Amity Cognitive Computing and Brain Informatics Centre

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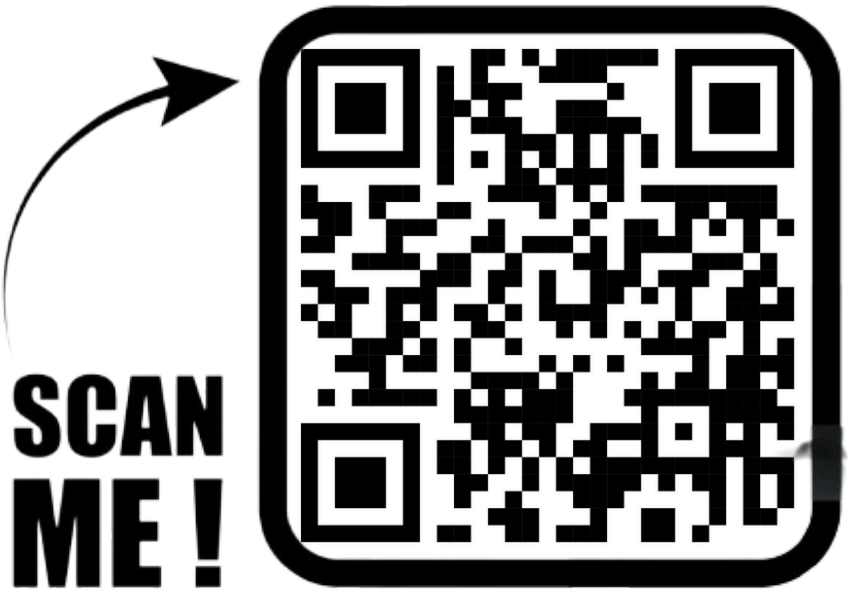
VISIT Melaka 2024-2026



https://tcce2025.utem.edu.my

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ABOUT THE CONFERENCE

The **International Conference on Trends in Computational and Cognitive Engineering (TCCE-2025)**, themed *"Connecting Ideas, Computing Futures,"* will be held on **12–13 November 2025** at **Universiti Teknikal Malaysia Melaka (UTeM), Malaysia**. This prestigious interdisciplinary event aims to advance the synergy between Cognitive Science and Computational Engineering, fostering collaboration, innovation, and knowledge exchange among researchers, academics, industry professionals, and educators worldwide.

Hosted by **UTeM** in collaboration with the **International Institute of Invincible Rhythms (IIOIR), Shimla, India, and the Amity Cognitive Computing and Brain Informatics Centre, Amity University Rajasthan, Jaipur, India**, TCCE-2025 serves as a vibrant platform for sharing research insights, exploring emerging trends, and addressing real-world challenges. The conference bridges theory and practice, empowering interdisciplinary teams to drive progress in intelligent systems, data-driven technologies, and human–machine integration.

With a strong focus on **Cognitive Science,** the study of human cognition and its applications in AI and intelligent systems, and **Computational Engineering**, which leverages modeling, simulation, and analytics to solve complex engineering problems; TCCE-2025 invites participants to connect ideas and compute the future together.

We look forward to welcoming you to Melaka, Malaysia, for an inspiring and intellectually engaging conference experience.

Welcome Remarks by the DEAN

Bismillahirrahmanirrahim,

Assalamualaikum Warahmatullahi Wabarakatuh and Salam Sejahtera.

It is my great pleasure to welcome all delegates to the International Conference on Trends in Computational and Cognitive Engineering (TCCE-2025). We are truly honoured to host this conference at Universiti Teknikal Malaysia Melaka (UTeM), in collaboration with the International Institute of Invincible Rhythms (IIOIR), Shimla, India, and the Amity Cognitive Computing and Brain Informatics Centre, Amity University Rajasthan, Jaipur, India. This conference serves as an inspiring platform where researchers, scholars, and practitioners from around the world come together to share ideas, present discoveries, and discuss new directions in computational and cognitive engineering.

As we gather on 12 – 13 November 2025, I hope TCCE-2025 will not only promote meaningful academic discussions but also spark long term collaborations that advance technology and human understanding. My sincere appreciation goes to the organizing committee for their dedication and to all participants for contributing their expertise and enthusiasm. I wish everyone a productive, engaging, and memorable conference experience.

Thank you everyone and enjoy the conference!

ASSOCIATE PROFESSOR TS. DR. ROSTAM AFFENDI BIN HAMZAH
Dean
Faculty of Electronics and Computer Technology and Engineering
Universiti Teknikal Malaysia Melaka

CHAIRMAN's Welcome Note

Assalamualaikum Warahmatullahi Wabarakatuh and Salam Sejahtera,

It is my great pleasure to welcome you to the International Conference on Trends in Computational and Cognitive Engineering (TCCE-2025), hosted by Universiti Teknikal Malaysia Melaka (UTeM) in collaboration with the International Institute of Invincible Rhythms (IIOIR), Shimla, India, and the Amity Cognitive Computing and Brain Informatics Centre, Amity University Rajasthan, Jaipur, India. With the theme *"Connecting Ideas, Computing Futures,"* this conference brings together researchers, academicians, and industry professionals to share insights and innovations at the intersection of Cognitive Science and Computational Engineering.

TCCE-2025 serves as a vibrant platform for fostering collaboration, exchanging ideas, and addressing real-world challenges that arise from the integration of human cognition with computational systems. As technology advances rapidly, the synergy between these domains becomes increasingly vital in driving intelligent and adaptive solutions for the future.

On behalf of the organizing committee, I would like to thank all speakers, authors, reviewers, and participants for their valuable contributions. We hope this conference will inspire new perspectives, meaningful collaborations, and impactful research outcomes. Welcome to Melaka, and I wish you a productive and memorable TCCE-2025 experience.

General Chair
International Conference on Trends in Computational and Cognitive Engineering (TCCE-2025)

KEYNOTE SPEAKER 1

PROF. DR. MOHAMMAD SHAHADAT HOSSAIN
Professor,
Computer Science & Engineering,
University of Chittagong, Bangladesh.

12 November 2025
9:30 - 9:45 am
Seminar Hall

The Evolution of Explainable Artificial Intelligence

ABSTRACT

Artificial Intelligence (AI) has become deeply embedded in our daily lives—powering systems that predict diseases, interpret images, understand language, and even decide who gets a loan. Yet, despite its remarkable accuracy, much of AI remains a black box—delivering decisions without revealing the reasoning behind them. This opacity limits human trust and raises critical concerns about safety, accountability, and ethics.

Explainable Artificial Intelligence (XAI) has emerged as a powerful response to this challenge, aiming to make AI systems more transparent, trustworthy, and understandable. In this keynote, I will trace the evolution of XAI—from its conceptual foundations to the latest research frontiers—highlighting how the field strives to balance the trade-off between accuracy and interpretability. I will also present an XAI model and showcase its practical applications across diverse domains, demonstrating how explainability is shaping the next generation of intelligent, human-centered systems.

Biography - Professor Dr. Mohammad Shahadat Hossain has been serving as the Professor of Computer Science and Engineering at the University of Chittagong, Bangladesh, since 2007. With over 30 years of academic and research experience, he earned his MPhil (1999) and PhD (2002) in Computation from the University of Manchester Institute of Science and Technology (UMIST), UK. He has received prestigious fellowships including the Fulbright (USA, 2023), Commonwealth (UK, 2009), Tyndall (UK, 2006), and Erasmus Mundus (Denmark, 2011, 2013). Professor Hossain is recognized in the 2022–2025 editions of the World's Top 2% Scientists by Stanford University and ranks among the top global researchers in Expert Systems and Artificial Intelligence. He leads international projects funded by the Swedish Research Council, Kempe Foundation, and Cybercampus Sweden. A prolific scholar, he has published nearly 300 papers and is a Senior Member of IEEE and a Member of the British Computer Society.

KEYNOTE SPEAKER 2

PROF. DR. M. SHAMIM KAISER
Professor,
Institute of Information Technology
Jahangirnagar University, Bangladesh.

12 November 2025
9:45 - 10:00 am
Seminar Hall

Artificial Intelligence in Healthcare: Key Challenges, Solutions, and Future Prospects

ABSTRACT

With the adoption of artificial intelligence (AI), the healthcare landscape is transforming rapidly by enabling data-driven decision-making, early detection, personalized intervention, and efficient management of diseases. Despite its immense potential, the integration of AI into healthcare practice presents several critical challenges. These include issues of data quality, interoperability, bias, transparency, privacy, regulatory compliance, and the ethical use of patient information. Moreover, the lack of clinician involvement in algorithm development and validation often limits clinical acceptance and reliability. The talk highlights the key challenges facing AI adoption in healthcare, analyzes current and emerging solutions—such as explainable AI, federated learning, robust data governance, and clinician-in-the-loop systems—and highlights the future prospects of intelligent, equitable, and sustainable healthcare ecosystems. By aligning technological innovation with ethical, clinical, and policy frameworks, AI can serve as a catalyst for improving patient outcomes, optimizing resource allocation, and shaping the next generation of precision medicine.

Biography - Dr. M. Shamim Kaiser is a Professor at the Institute of Information Technology, Jahangirnagar University, Bangladesh. He obtained his Ph.D. in Telecommunication Engineering from the Asian Institute of Technology (AIT), Thailand, and previously held postdoctoral positions at Anglia Ruskin University and the University of Cambridge, UK. With over 350 publications, he leads the Advanced Intelligence, Informatics and Smart Transformation (AI2ST) Research Group, focusing on AI, machine learning, big data, cybersecurity, and smart healthcare. A Senior Member of IEEE and IEICE, he has been ranked among the world's top 2% scientists by Stanford University and recognized as Bangladesh's Best Computer Scientist by Research.com. Dr. Kaiser also serves as Associate Editor of IEEE Access and Academic Editor of PLOS ONE.

KEYNOTE SPEAKER 3

PROF. DR. KANAD RAY
Director,
Amity Cognitive Computing and Brain Informatics Center
Amity University, Jaipur, India

13 November 2025
11:30 - 11:45 am
Seminar Hall

Will Superintelligent Machines Erase What It Means to Be Human?

ABSTRACT

In an era of superintelligent machines, this study integrates physics, computer science, and electronics to redefine human identity. From physics, humans are complex systems resisting disorder via quantum mechanics and thermodynamics, with consciousness arising from unpredictable neural processes unlike silicon machines' efficient computations. Superintelligent AI, constrained by Landauer's principle on energy for information erasure, prompts questions about human uniqueness in inefficient adaptability versus machines' potential quantum leaps. Computer science views humans beyond algorithms, excelling in ill-defined problems, creativity, and moral decisions, while AI's self-improving pattern recognition challenges human essence in experiences and social contexts. Electronics and communication engineering examines enabling technologies like circuits, brain-computer interfaces, and wireless networks that integrate biological and artificial systems. This integration raises concerns about human obsolescence amid deepening technological fusion. Ultimately, humanity persists through ties to uncertainty, ethics, and relationships, not superiority over advancing machines.

Biography - Dr. Kanad Ray is the Director of the Amity Cognitive Computing and Brain Informatics Centre and Professor of Physics and Electronics & Communication at the Amity School of Applied Sciences, Amity University Rajasthan (AUR), Jaipur, India. He holds an M.Sc. and Ph.D. in Physics from Calcutta University and Jadavpur University, respectively. With over 27 years of academic experience, he has published extensively and guided 10 Ph.D. scholars in interdisciplinary research. His interests span cognition, communication, electromagnetics, microwaves, and computational biology. A senior IEEE member, Dr. Ray has fostered global collaborations, including with the University of Montreal, Universiti Teknologi Malaysia, and the National Institute for Materials Science, Japan, and serves as General Chair of international conferences such as TCCE and TEHI.

SPECIAL SESSION

PROF. DR. VIJAY SINGH RATHORE
Chairman,
Shree Kkarni Universe College, India.

12 November 2025
10:00 - 10:15 am
Seminar Hall

Best Practices of Research – Ethics

ABSTRACT

Ethical conduct in research is the cornerstone of academic integrity and scientific progress. This presentation on "Best Practices of Research – Ethics" highlights the fundamental principles, values, and responsibilities that guide researchers in maintaining honesty, transparency, and accountability in all stages of research. It discusses the importance of adhering to moral standards in data collection, analysis, authorship, publication, and collaboration to ensure credibility and societal trust. The talk further emphasizes the prevention of research misconduct such as fabrication, falsification, and plagiarism, while also addressing issues related to peer review, conflict of interest, and intellectual property. By fostering openness, respect for colleagues, and responsible supervision, these ethical practices not only enhance research quality but also contribute to the global advancement of knowledge. The session concludes by encouraging scholars to take pride in research integrity and to uphold ethical values as an integral part of their professional identity.

Biography - Prof. (Dr.) Vijay Singh Rathore serves as the Dean of Computer Applications and International Relations at Apex University, Jaipur. He is also the CEO of KK Consultancy and Chairman of Shree KKarni Universe College. With over 20 years of academic and industry experience, he has contributed extensively to the fields of computer science and emerging technologies, particularly in internet security, cloud computing, artificial intelligence, and the Internet of Things. His scholarly output includes 94 research papers, 10 books, and numerous national and international recognitions. He is actively involved in global academic engagement, recently serving as Convenor and Program Committee Chair for international conferences in Poland and Vietnam, and as Organizing Chair for a 2025 international conference to be held in Jaipur.

PLENARY SPEAKER

Signal Processing, Computer Vision & Engineering

ASSOC. PROF. DR. NURULFAJAR BIN ABD MANAP
Faculty of Electronics and Computer Technology and Engineering
Universiti Teknikal Malaysia Melaka

12 November 2025
11:30 - 11:45 am
Seminar Hall

Bridging Real and Virtual Worlds: Integrating Spatial Computing into Signal and Vision Systems

ABSTRACT

This plenary explores the convergence of signal processing, computer vision and spatial computing technologies such as augmented reality, virtual reality, and deep learning to advance innovation across both technical and human-centered domains. The session highlights recent research and applications in cultural pattern recognition using deep learning, including the classification of Batik motifs from Malaysia and Indonesia, as well as interactive visualizations of Songket patterns through augmented reality. It also features the use of deep neural networks for restoring color to grayscale images and historical video footage, contributing to digital heritage preservation. These interdisciplinary efforts demonstrate how immersive technologies and intelligent vision systems can extend beyond conventional boundaries to support education, cultural storytelling and experiential learning. Through real-world examples and research-led innovation, the keynote offers insights into how spatial computing can reshape the way we perceive, process and interact with both signals and cultural content in meaningful ways.

PLENARY SPEAKER

Cognitive Science and Computational Biology

ASSOC. PROF. IR. DR. SYAFEEZA BINTI AHMAD RADZI
Faculty of Electronics and Computer Technology and Engineering
Universiti Teknikal Malaysia Melaka

12 November 2025
11:30 - 11:45 am
Lecture Room 12

Bridging Mind and Biology: AI-Driven Autism Understanding through Cognitive and Computational Intelligence

ABSTRACT

This plenary highlights the convergence of cognitive science and computational intelligence in advancing the understanding and early detection of Autism Spectrum Disorder (ASD). It presents two complementary perspectives: the cognitive approach, where DSM-5 behavioral data are modeled using machine learning to capture social and communication traits, and the computational biology approach, where deep learning techniques analyze neural activity patterns to identify atypical brain functions. These studies demonstrate how AI can transform behavioral and biological information into interpretable, measurable insights that support early intervention. The plenary also emphasizes ethical, explainable, and human-centered AI frameworks for clinical application, envisioning a future where intelligent systems not only detect neurological differences but also deepen our understanding of cognition and human diversity.

PLENARY SPEAKER

Artificial Intelligence and Soft Computing

PROF. TS. DR. BURHANUDDIN BIN MOHD ABOOBAIDER
Faculty of Information and Communication Technology
Universiti Teknikal Malaysia Melaka

12 November 2025
14:30 - 14:45 pm
Seminar Hall

Automated Node-Level Diagnostics and Improvement of Tree Models Using XGBoost and OpenAI

ABSTRACT

The growing complexity of tree-based ensemble models, such as Random Forests and Gradient Boosting Machines, poses significant challenges for debugging due to the opacity of their internal decision-making processes. Current explainability techniques predominantly emphasize the importance of input features, often neglecting to address inherent structural deficiencies within the models themselves. This paper presents a novel framework for automated diagnostics and improvement at the node level. Our approach employs a meta-learning strategy in which a pre-trained XGBoost model assesses the health of individual nodes based on structural features derived from the model's standardized Open Neural Network Exchange (ONNX) representation. The resulting granular structural diagnostics are integrated with external validation metrics through the use of a Large Language Model (LLM), culminating in a comprehensive, human-readable

PLENARY SPEAKER

Artificial Intelligence and Soft Computing

ASSOC. PROF. TS. DR. CHOO YUN HUOY
Faculty of Artificial Intelligence and Cyber Security
Universiti Teknikal Malaysia Melaka

12 November 2025
14:30 - 14:45 am
Lecture Room 17

Machine Learning Operations (MLOps): Bridging the Gap from Model to Production

ABSTRACT

This presentation addresses the critical challenges of deploying and managing Machine Learning (ML) systems in real-world environments. Unlike traditional software, ML applications involve complex, dynamic interactions of code, data, and models, creating unique stability and scalability issues. MLOps provides an engineering framework to automate and standardize the entire ML lifecycle, from experimentation and data engineering to production monitoring and governance.

This session will explore the core pillars of MLOps, including Continuous Integration (testing code, data, and models), Continuous Delivery (delivering the entire training pipeline), and Continuous Training (automating model retraining). We will examine key challenges, with a special focus on data and concept drift—the primary drivers of model degradation in production. We will also discuss the importance of achieving end-to-end reproducibility, auditability, and bridging the collaboration gap between data scientists and engineers.

Finally, the presentation will look toward the future of the discipline, including the rise of LLMOps for managing large language models and the critical integration of Responsible AI (RAI) to embed fairness, bias, and explainability checks directly into the MLOps workflow. Attendees will gain a comprehensive understanding of MLOps as the essential engineering discipline for transforming ML models from experimental prototypes into reliable, scalable, and value-delivering production systems.

PLENARY SPEAKER

IoT and Data Analytics

TS. DR. NORIHAN BINTI ABDUL HAMID
Faculty of Electronics and Computer Technology and Engineering
Universiti Teknikal Malaysia Melaka

13 November 2025
9:00 - 9:15 am
Seminar Hall

Lightweight Computer Vision and IoT Integration for Real-Time Drowsiness Detection

ABSTRACT

Drowsiness is a significant contributor to driver road accidents worldwide, posing a severe risk to life and property. Therefore, a real-time drowsiness detection system using a combination of lightweight computer vision and Internet of Things (IoT) technology to enhance road safety is presented in this paper. The system detects drowsiness cues such as eye blinking and yawning using facial landmark-based methods (Dlib) hence performance the comparative analysis for MediaPipe and pretrained CNN. This system implemented in Raspberry Pi system offers visual, auditory and remote alerts via a mobile application and Telegram based cloud notification. Benchmarking and testing were conducted using the YawDD dataset, yielding high detection accuracy with Dlib and MediaPipe on the Raspberry Pi. The proposed system demonstrates a practical and economic solution to prevent drowsy-driving-related accidents.

CONFERENCE SCHEDULE

DAY 1

12 November 2025 (Wednesday)

Time (MYT)	Event
08:00 – 09:00	Arrival of Guests and Registration *Seminar Hall*
09:00 – 09:30	**Opening Ceremony** National Anthem and "UTeM Terbilang" Doa Recitation Welcoming Speech by the Chairman of TCCE-2025 Officiating Speech by the Distinguished Patron of TCCE-2025 *Seminar Hall*
09:30 – 9:45	**Keynote Speaker 1: Prof. Dr. Mohammad Shahadat Hossain** Computer Science & Engineering, University of Chittagong, Bangladesh. **Title: The Evolution of Explainable Artificial Intelligence** Chairperson: Ir. Dr. Noor Azwan bin Shairi *Seminar Hall*
09:45 – 10:00	**Keynote Speaker 2: Prof. Dr. M. Shamim Kaiser** Institure of Information Technology, Jahangirnagar University, Bangladesh. **Title: Artificial Intelligence in Healthcare: Key Challenges, Solutions, and Future Prospects** Chairperson: Ir. Dr. Noor Azwan bin Shairi *Seminar Hall*
10:00 – 10:15	**Special Session: Prof. Dr. Vijay Singh Rathore** Shree Kkarni Universe College, India. **Title: Best Practices of Research – Ethic** Chairperson: Ts. Dr. Sani Irwan bin Md Salim *Seminar Hall*

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<tr><td>10:15 – 10:45</td><td colspan="3">Group Photo and Tea Break
Seminar Hall</td></tr>
<tr><td>10:45 – 11:30</td><td colspan="3">Social Networking and Booth Exhibition
Seminar Hall and Faculty Foyer (Ground Floor)</td></tr>
<tr><td rowspan="3">11:30 – 13:00</td><td colspan="3">Parallel Session 1</td></tr>
<tr><td>Signal Processing, Computer Vision & Engineering
Seminar Hall</td><td>Cognitive Science and Computational Biology
Room: BK12</td><td>Artificial Intelligence and Soft Computing
Room: BK17</td></tr>
<tr><td>Plenary Speaker: Assoc. Prof. Dr. Nurulfajar bin Abd Manap

Session Chair: Dr. Aiman Zakwan bin Jidin</td><td>Plenary Speaker: Assoc. Prof. Ir. Dr. Syafeeza binti Ahmad Radzi

Session Chair: Ts. Dr. Nur Fatihah binti Azmi</td><td>Session Chair: Ts. Dr. Muhammad Noorazlan Shah bin Zainudin</td></tr>
<tr><td>13:00 – 14:30</td><td colspan="3">Lunch Break
Banquet Room (First Floor)</td></tr>
<tr><td rowspan="3">14:30 – 16:30</td><td colspan="3">Parallel Session 2</td></tr>
<tr><td>Artificial Intelligence and Soft Computing
Seminar Hall</td><td>Network and Security
Room: BK12</td><td>Artificial Intelligence and Soft Computing
Room: BK17</td></tr>
<tr><td>Plenary Speaker: Prof. Ts. Dr. Burhanuddin bin Mohd Aboobeider

Session Chair: Dr. A. K. M. Zakir Hossain</td><td>Session Chair: Ts. Siti Rosmaniza binti Ab Rashid</td><td>Plenary Speaker: Assoc. Prof. Dr. Choo Yun Huoy

Session Chair: Assoc. Prof. Madya Dr. Kok Swee Leong</td></tr>
<tr><td>16:30 – 17:00</td><td colspan="3">Tea Break
Banquet Room (First Floor)</td></tr>
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CONFERENCE SCHEDULE

DAY 2

13 November 2025 (Thursday)

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<tr><td rowspan="3">09:00 – 11:00</td><td colspan="3">Parallel Session 3</td></tr>
<tr><td>IoT and Data Analytics</td><td>Signal Processing, Computer Vision & Engineering</td><td>Artificial Intelligence and Soft Computing</td></tr>
<tr><td>Seminar Hall</td><td>Room: BK12</td><td>Room: BK17</td></tr>
<tr><td>Plenary Speaker: Ts. Dr. Norihan binti Abdul Hamid

Session Chair: Ts. Dr. A. Shamsul Rahimi bin A. Subki</td><td>Session Chair: Ts. Dr. Mohd Syafiq bin Mispan</td><td>Session Chair: Ts. Dr. Khairul Azha bin A Aziz</td></tr>
<tr><td>11:00 – 11:30</td><td colspan="3">Tea Break
Banquet Room (First Floor)</td></tr>
<tr><td>11:30 – 11:45</td><td colspan="3">Keynote Speaker 3: Prof. Dr. Kanad Ray
Amity Cognitive Computing and Brain Informatics Center
Amity University, Jaipur, India

Will Superintelligent Machines Erase What It Means to Be Human?

Chairperson: Assoc. Prof. Dr. Mohd Imran bin Ibrahim

Seminar Hall</td></tr>
<tr><td>11:45 – 13:00</td><td colspan="3">Closing Ceremony & Award Presentation</td></tr>
<tr><td>13:00</td><td colspan="3">Lunch
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<tr><td>14:00</td><td colspan="3">Heritage Tour</td></tr>
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TECHNICAL PROGRAM

Parallel Session 1

Wednesday, 12 November 2025
Time: 11:30 - 13:00

Track : **Signal Processing, Computer Vision & Engineering**
Venue : Seminar Hall
Session Chair : Dr. Aiman Zakwan bin Jidin (Universiti Teknikal Malaysia Melaka, UTeM)

Plenary Speaker **(11:30 - 11:45)**	**Bridging Real and Virtual Worlds: Integrating Spatial Computing into Signal and Vision Systems** *Assoc. Prof. Dr. Nurulfajar bin Abd Manap*
Time: 11:45 **#1571193620** **Deep Learning-Based Automatic Colorization of Legacy Grayscale Images for Cultural Heritage Preservation** *Nurulfajar Abd Manap; Muhammad Fakhrul Hafeez Mohd Fauzi*	
Time: 12:00 **#1571193058** **BrewLens: Smart Coffee Bean Scanner and Market Guide** *Malcolm Jasper C. Frias; Andreij Lacson; John Luis S Mago; Mc Joben R. Reyes*	
Time: 12:15 **#1571204717** **Framework Development of the Sustainable Imaging Quality Inspection System for Automotive Metal Stamping Parts Using Machine Learning** *Wahyono Sapto Widodo*	
Time: 12:30 **#1571208082** **Optimizing Hidden Neuron Count in a Shallow ANN for EEG Seizure Detection** *Zamry Zakaria*	
Time: 12:45 **#1571200543** **Real Time Procedural Audio for Immersive Gameplay with MetaSounds** *Fardani Annisa Damastuti; Kenan Firmansyah; Yunifa Miftachul Arif; Rizky Yuniar Hakkun; Ibrohim Yofid Fananda; Irma Wulandari; Aji Sapta Pramulen; Jauari Akhmad Hasim; Zulhaydar Akbar*	

TECHNICAL PROGRAM

Track **: Cognitive Science and Computational Biology**
Venue : Lecture Room 12 (BK12)
Session Chair : Ts. Dr. Nur Fatihah binti Azmi (Universiti Teknikal Malaysia Melaka, UTeM)

Plenary Speaker **(11:30 - 11:45)**	**Bridging Mind and Biology: AI-Driven Autism Understanding through Cognitive and Computational Intelligence** *Assoc. Prof. Ir. Dr. Syafeeza binti Ahmad Radzi*
Time: 11:45 **#1571202892** **Dataset Distribution and Annotation Challenges in Multifruit Disease Detection with YOLO Models** *Syafeeza Ahmad Radzi*	
Time: 11:45 **#1571208343** **Cognitive Load and Skill Development in Extreme E-Service-Learning: An Engineering Students' Perspective** *Azizah Yusof*	
Time: 12:00 **#1571205902** **Optimizing Light Source Selection for Fiber-Optic Limonene Sensors: Comparative Study of Blue, Green, and Red LEDs** *Hazura Haroon; Thanigai Anbalagan; Hanim abdul Razak; Anis Suhaila Mohd Zain; Siti Idris; Nurjuliana Juhari*	
Time: 12:15 **#1571206031** **Designing for Cognitive and Emotional Support: A Mobile Coloring Book Prototype for Mindfulness** *Farah Azman; Nur Nabilah Syakila Noruddin*	
Time: 12:30 **#1571203084** **Emergency Response Simulator: Learn and Save Lives** *Nur Raidah binti Rahim; Sazilah Salam; Che Ku Nuraini Che Ku Mohd; Wan Mohd Yaakob Wan Bejuri; Siti Aisyah Mohd Nasron; Richki Hardi*	

TECHNICAL PROGRAM

Track **: Artificial Intelligence and Soft Computing**
Venue : Lecture Room 17 (BK17)
Session Chair : Ts. Dr. Muhammad Noorazlan Shah bin Zainudin (UTeM)

Time: 11:30
#1571172721
Intrusion Detection System for IoT Using Lightweight Hybrid Deep Learning
Karrar Majid Jasim; Jolan Rokan Naif

Time: 11:45
#1571191724
Empirical Comparison of Transformer Architectures for Binary Classification Using a Multi-Metric Framework Balancing Predictive Accuracy and Computational Efficiency
Md. Mortuza Ahmmed; Hasin Almas Sifat; Koushik Biswas Arko; M. Mostafizur Rahman; Mufti Mahmud

Time: 12:00
#1571192486
Cardiovascular Health Insights & Prediction System Using Ensemble Models
Zhong Xian Sim; Nurulaqilla Khamis; Shafishuhaza Sahlan; Hazlina Selamat

Time: 12:15
#1571203041
Real-Time Transformer Fault Detection: A Comprehensive Review of Hybrid Vision Transformer and YOLO Models
Mardzulliana Binti Zulkifli; Ridza Ramlee; Syafeeza Ahmad Radzi; Nur Syuhada Amir Hamzah; Muhammad Farhan Norazman

Time: 12:30
#1571193905
Individual and Institution Level Analysis of Agricultural Drone Technology Adoption: A Literature & Empirical Study
Yusril Rahman; Tony Dwi Susanto

Time: 12:45
#1571210142
Optimization of Doped PANI/Go-Based Perovskite Solar Cells Using Hybrid Predictive Modeling Technique
Fauziyah Salehuddin; Nabilah Ahmad Jalaludin; Faiz Arith; Nurul Farina Mohd Nazli; Siti Aisah; Anis Suhaila Mohd Zain; Khairil Ezwan Kaharudin

TECHNICAL PROGRAM

Parallel Session 2

Wednesday, 12 November 2025
Time: 14:30 - 16:30

Track : **Artificial Intelligence and Soft Computing | IoT and Data Analytics**
Venue : Seminar Hall
Session Chair : Dr. A. K. M. Zakir Hossain (Universiti Teknikal Malaysia Melaka, UTeM)

Plenary Speaker **(14:30 - 14:45)**	**Automated Node-Level Diagnostics and Improvement of Tree Models using XGBoost and OpenAI** *Prof. Ts. Dr. Burhanuddin bin Mohd Aboobeider*

Time: 14:45
#1571194387
Modelling Adaptive Empathy Through Habituation Effects in Social Agents
Nurul Husna Mukhtar; Azizi Ab. Aziz; Husniza Husni

Time: 15:00
#1571202521
RGB Image Interpolation Using Cubic q-Bezier Triangular Patches
Samsul Ariffin Abdul Karim; Owen Tamin; Ervin Gubin Moung; Jumat Sulaiman; Faheem Khan; Zamani Md Sani

Time: 15:15
#1571202515
Modeling Post Treatment Orthodontic Curves Using Natural Cubic Spline and Hermite Spline Interpolation
Samsul Ariffin Abdul Karim; Sharmila Karim; Rahela Abdul Rahim; Si Yee Choo; Pennie Loi

Time: 15:30
#1571202360
Improved Delaunay Triangulation Based on Support Vector Regression and Laplacian Smoothing
Samsul Ariffin Abdul Karim; Owen Tamin; Ervin Gubin Moung; Jumat Sulaiman; Mawardi Bahri; Abdul Ghaffar; Zamani Md Sani

TECHNICAL PROGRAM

Time: 15:45
#1571201685
Deep Convolutional Neural Networks for Precision Agriculture: Automated Pomegranate Disease Classification
Sumshun Nahar Eity; Tanisha Fairooz; Hasan Mahmud; Amina Tasnim Oishe; Sharfuddin Mahmood; Md. Mortuza Ahmmed

Time: 16:00
#1571202476
Experimental Evaluation of PSO-PID Controller in Precision Pneumatic Actuator Applications
Faiez Ezzuddin Esham; Sharatul Izah Samsudin; Khairuddin Osman

Time: 16:15
#1571200993
An Attention-Based CNN Framework with Hybrid Annotation for Multiclass Screening of Postpartum Depression
Afsana Hena; Nazneen Akhter; Jasiya Fairiz Raisa

TECHNICAL PROGRAM

Track : **Network and Security | Cognitive Science & Computational Biology**
Venue : Lecture Room 12 (BK12)
Session Chair : Ts. Siti Rosmaniza binti Ab Rashid (UTeM)

Time: 14:30
#1571210019
Performance Evaluation of Handover Control Parameters in Non-Standalone Dual Connectivity 5G mmWave Networks Under a Realistic Simulation Environment
Tehseen Ullah Khattak; Vigneswara Rao Gannapathy; Siva Kumar Subramaniam; Ahamed Tuani; Siti Aisyah Anas

Time: 14:45
#1571205375
Educators' Perception Towards Engineering Graduates' Skills at Malaysian Higher Education Institution Towards Sustainability
Hasan Saleh

Time: 15:00
#1571209909
Connecting Policy and Network Controls: Experimental Evaluation of an Integrity-Centred ICT Security Framework for Malaysian Education
Azlin Binti Ramli; Darus Mohamad Yusof; Fakariah Hani Mohd Ali; Roshayati Osman

Time: 15:15
#1571193948
Drone Technology for Smart Farming: Applications, Opportunities, Challenges, and Technical Specifications
Muhammad Amirul Mukminin; Tony Dwi Susanto

Time: 15:30
#1571208312
EnCAS: Feed-Forward Neural Network for Time-Efficient Cover Selection in Audio Steganography
Taqiyuddin Anas; Farida Ridzuan; Sakinah Ali Pitchay

Time: 15:45
#1571203088
A Blockchain Driven Secure Privacy Enforcement System for Personally Identifiable Information at the Pre-Transit Phase in Web Systems
Md. Azizul Hakim Sowrov; Rashed Mazumder

TECHNICAL PROGRAM

Track : **Artificial Intelligence and Soft Computing**
Venue : Lecture Room 17 (BK17)
Session Chair : Assoc. Prof. Dr. Kok Swee Leong (Universiti Teknikal Malaysia Melaka, UTeM)

Plenary Speaker **(14:30 - 14:45)**	**Machine Learning Operations (MLOps): Bridging the Gap from Model to Production** *Assoc. Prof. Dr Choo Yun Huoy*

Time: 14:45
#1571209921
Towards Computing Futures in Education: An Adaptive Decision Model for Teacher-School Matching with Explainable Outputs
Roshayati Osman; Mohd Zakree Ahmad Nazri; Zulkefli Bin Mansor; Azlin Binti Ramli

Time: 15:00
#1571210184
Performance Improvement of CsPbI3 Perovskite Solar Cells Using Taguchi-GRA Based Predictive Modeling
Fauziyah Salehuddin; Nurul Farina Mohd Nazli; Faiz Arith; Siti Aisah; Nabilah Ahmad Jalaludin; Anis Suhaila Mohd Zain; Khairil Ezwan Kaharudin

Time: 15:15
#1571210389
Machine Learning for Scholarship Prediction: A Systematic Review of Eligibility and Acceptance Models
Muhammad Thoriq; Sakinah Ali Pitchay; Farida Ridzuan

Time: 15:30
#1571209208
AI Induced Burnout in Tech: A SHAP Based Diagnostic Study with an HCI-Guided Intervention Model
Sakshi Kiran Naik

Time: 15:45
#1571209348
The Application of Artificial Intelligence in Educational Evaluation: A Bibliometric Analysis
Wahyu Muhammad Ramdhani

Time: 16:00
#1571208411
MultiBanAbs: A Comprehensive Multi-Domain Bangla Abstractive Text Summarization Dataset
Md. Tanzim Ferdous; Naeem Ahsan Chowdhury; Prithwiraj Bhattacharjee

TECHNICAL PROGRAM

Parallel Session 3

Thursday, 13 November 2025
Time: 9:00 - 11:00

Track : **IoT and Data Analytics**
Venue : Seminar Hall
Session Chair : Ts. Dr. A. Shamsul Rahimi bin A. Subki (UTeM)

Plenary Speaker **(9:00 - 9:15)**	**Lightweight Computer Vision and IoT Integration for Real-Time Drowsiness Detection** *Ts. Dr. Norihan Abdul Hamid*
Time: 9:15 **#1571193904** **AquaSense Solutions: Internet-Of-Things-Based Water Quality Monitoring System** *Rovic G Batacandolo; Cristan Guzman Ramos; Eleazar Concepcion de Guzman; Angel Rose C. Alfonso; Mc Joben R. Reyes*	
Time: 9:30 **#1571199828** **Tracing Connectivity: Mobile Network User Trends and Transformations in Bangladesh Between 2015 to 2024** *Md. Mortuza Ahmmed; Tamim Hasan Apurbo; Mahdi Hassan Noor Asif; Safwan Mahmud Anik; M. Mostafizur Rahman; Mufti Mahmud*	
Time: 9:45 **#1571209502** **A Modularized Cloud Computing Adoption for E-Government System** *Ban Salman Shukur; Mohd Khanapi Abd Ghani; Maad M. Mijwil; Burhanuddin Mohd Aboobaider; Ali S. Abed Al Sailawi; Hassan A. Hameed Al-Hamzawi*	
Time: 10:00 **#1571174335** **Black Pepper: a Predictive Model Integrating NDVI, ROC, and SWA for NPK Optimization** *Anding Nyuak; Edwin Mit; Siti Fatia Mohamad Ali*	

TECHNICAL PROGRAM

Time: 10:15
#1571202870
A Methodology for Generating Synthetic Test Case - Requirement Data for Traceability Matrix and Test Suite Reduction Research
Haw Yuan Kang; Raja Rina Raja Ikram; Kamal Z Zamli

Time: 10:30 (Virtual)
#1571193157
Risk Model of Digital Customer Engagement in Rental Collaborative Consumption Platforms
Muhammad Faiz bin Nasir

TECHNICAL PROGRAM

Track : **Signal Processing, Computer Vision & Engineering | Artificial Intelligence and Soft Computing**
Venue : Lecture Room 12 (BK12)
Session Chair : Ts. Dr. Mohd Syafiq bin Mispan (Universiti Teknikal Malaysia Melaka, UTeM)

Time: 9:00
#1571210381
Wideband Effect of CPW Felt Wearable Antenna on Human Skin Layer Phantom at 1.8 GHz, 2.4 GHz and 3.5 GHz
Badrul Hisham Ahmad; Muhammad Syafiq Noor Azizi; Nornikman Hassan; Mohamad Hafize Ramli

Time: 9:15
#1571193846
Enhancing S&P 500 Forecasting with Multi-Source Sentiment Analysis from Social Media and Financial Videos
Carmel Natasha Barnabas; Tan Chye Cheah

Time: 9:30
#1571203140
A Multilingual Deep Learning Framework for Sign Language Recognition and Translation
Sharmin Islam Shroddha; Sumaia Anjum Shaba; Sudipto Biswas; Siam Tahsin Bhuiyan; Rashedur Rahman; Saadia Binte Alam; Ashraful Islam

Time: 9:45
#1571202695
Toward Generalized Detection of Synthetic Media: Limitations, Challenges, and the Path to Multimodal Solutions
Redwan Hussain; Mizanur Rahman; Prithwiraj Bhattacharjee

Time: 10:00
#1571202648
MIME: Multi-Strategy Imbalance Mitigation Engine for Skin Cancer Classification
Md. Nasif Safwan; Souhardo Rahman; Md. Abdulla Al Hasib; Md. Hasibul Islam; Mahamodul Hasan Mahadi; Mohammad Nasir Uddin

Time: 10:15
#1571202740
Design and Analysis of a Circularly Polarized UHF RFID Reader Antenna with Machine Learning-Based Performance Prediction
Ergün Yılmazer; Merih Palandoken

Time: 10:30
#1571206384
Forecasting Cocoa Prices in Tawau, Sabah: A Comparative Time Series Approaches Using ARIMA and Exponential Smoothing
Sharmila Karim; Rohaiza Zakaria; Hashibah Hamid; Samsul Ariffin Abdul Karim; Nabilah Abu Bakar

TECHNICAL PROGRAM

Track **: Artificial Intelligence and Soft Computing**
Venue : Lecture Room 17 (BK17)
Session Chair : Ts. Dr. Khairul Azha Bin A Aziz (Universiti Teknikal Malaysia Melaka, UTeM)

Time: 9:00
#1571203034
Deep Learning Approach for Covid-19 Detection: Integrating CNN & LSTM Using Chest X-Ray
Nur Syuhada Amir Hamzah; Ridza Ramlee; Masrullizam Mat Ibrahim; Mardzulliana Binti Zulkifli

Time: 9:15
#1571202602
Comparative Analysis of Machine Learning Architectures for Multimodal Cloud-to-Ground Lightning Classification Using CAPPI Radar and Electric Field Data
Xian Gie Cheah; Mawarni Mohamed Yunus; Nor Azlan Mohd Aris

Time: 9:30
#1571203124
Zero-Shot Indonesian Food Classification with CLIP: Cultural Adaptation Through Prompt Engineering
Yeni Dwi Rahayu; Slamet Riyadi

Time: 9:45
#1571196255
BloomNet: Exploring Single vs. Multiple Object Annotation for Flower Recognition Using YOLO Variants
Safwat Nusrat; Prithwiraj Bhattacharjee

Time: 10:00
#1571209916
Fuzzy-Logic-Based Multi-Sensor Fusion for Marine Engine Health Diagnostics
Mohd Fairuz Nasir; Mawarni Mohamed Yunus

Time: 10:15
#1571203730
Evaluating Metaheuristic Strategies for Cost-Effective Team Formation Using Chaotic Maps and Roulette Wheel Selection
Raja Rina Raja Ikram; Kurk Wei Yi; Kamal Z Zamli; Nurul Aisyah Aris; Haw Yuan Kang

Time: 10:30
#1571202626
Diabetes Classification Based on Clinical Risk Factors Using Supervised Machine Learning and KNN-XGBoost Ensemble
Md. Najmul Islam

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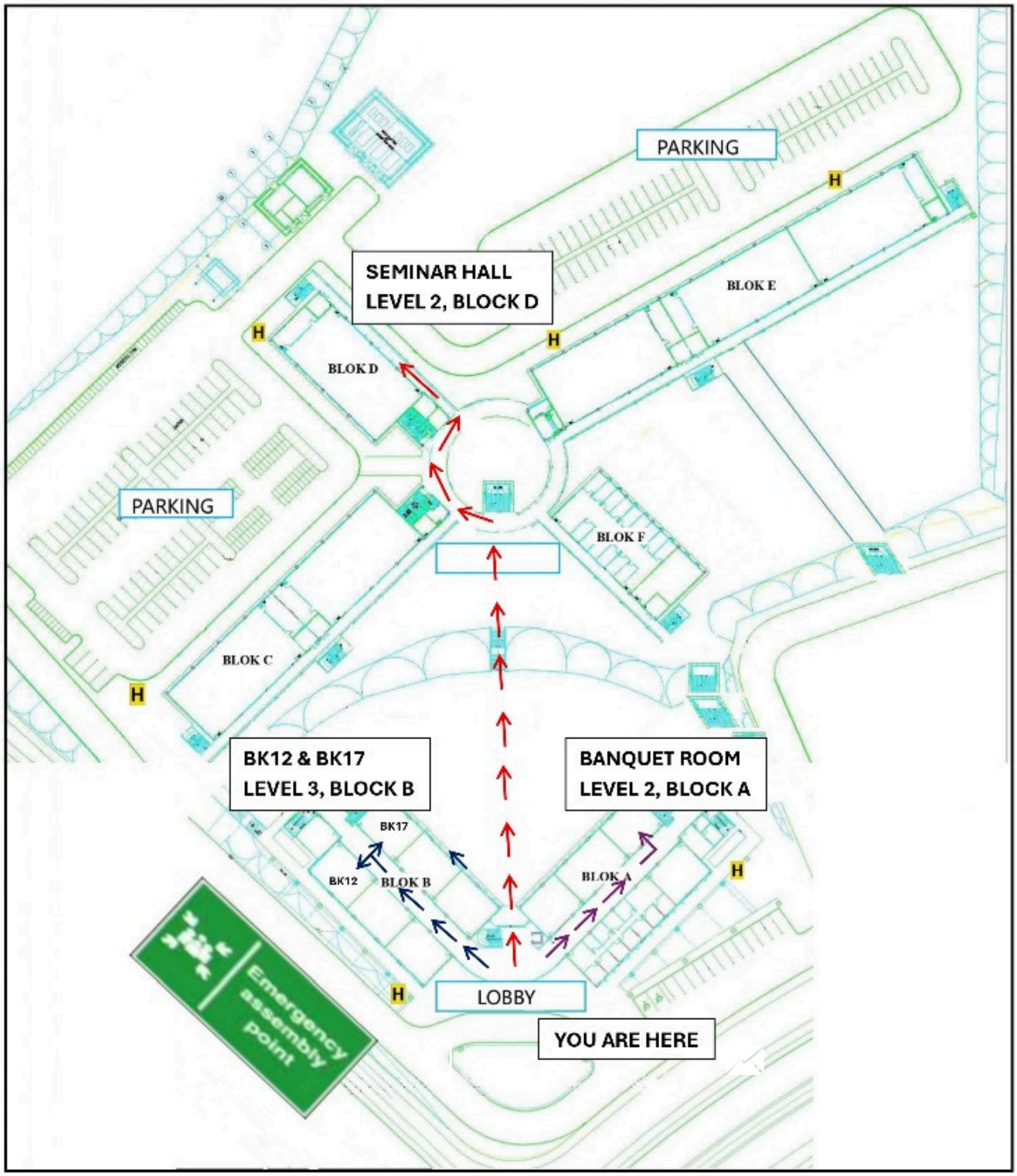
CONFERENCE FLOOR PLAN

MAP TO SEMINAR HALL



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