ICaTAS'2025 Technical Program

Tuesday, October 21st, 2025

INVITED KEYNOTE SPEAKERS SESSIONS

11:30 – 12:15

Keynote Speech I

Room: Main Hall- Zone C

Chair: ***Prof. Khaled Shehata***

Automotive Safety for Child Occupants: Perspectives from ASEAN NCAP Vehicle Assessment

Assoc. Prof. Ir. Ts. Dr. Nurulakmar Binti Abu Husain

Japan International Institute of Technology Dean, Universiti Teknologi Malaysia

12:15-13:00

Keynote Speech II

Room: Main Hall- Zone C

Chair: ***Assoc. Prof. Ir. Ts. Dr. Nurulakmar Binti Abu Husain***

Metaheuristic optimization algorithms: Taxonomy, Open problems and Applications

Prof. Ali Fahmy

AASTMT, Egypt

13:00-13:45

INDUSTRIAL SESSION

Room: Main Hall- Zone C

Chair: ***Prof. Moustafa Hussein***

Space Industry

Prof. Sherif Sedki

AUC, Egypt

13:45-15:45

Session 1 Computer Engineering-A

Room: B203

Chair: ***Prof. Sherif Fadel***

Co-Chair: ***Noha Ghatwary***

7 Ensemble Large Language Models for Automated Grading

Aya Salama, Gerges Marly Maged Kamal

12 Explainable and Trustworthy AI for Crop Yield Forecasting: Advancing Decision-Making in Precision Agriculture

Mariam Shaaban Sayed Hassan, Mohammed Safy

13 Sentinel-2 Images' Super-Resolution Through Misrsat-2 And Deep Learning Methods

Bassant Raafat, Ahmed M. El-Shal, Belal Elleaithy, Mohammed Safy

21 A Risk-Conscious Hybrid Recommender for Financial Assets: Personalization with Guaranteed Profitability

Youssef Mohamed Oraby, Laila Mohamed Medhat, Karma Fathalla, Mazen Elagamy

97 Sensor-based Federated Learning using Flower Framework for Distributed Human Activity Recognition

Mahmoud Elsaid M. Elharmil, Sherin M. Youssef, Doaa A. Shoieb, Noha S. Tawfik

32 Incorporating Sarcasm-Infused Slang ('Lughat al-Sarsagiyya') into GPT Models: Challenges and Opportunities in Arabic AI Linguistics

Wael Badawy

13:45-15:45

Session 2 Communication Engineering

Room: B205

Chair: ***Prof. Mohamed Abaza***

Co-Chair: ***Dr. Mohamed Elkhoreby***

79 Ab initio Density Functional Theory Calculation of Molybdenum Gallium Carbide as a Saturable Absorber in Pulsed Fibre Laser

Wei Ling Ooi, Azura Hamzah, Norliza Mohamed, Nur Najahatul Huda Saris, Ahmad Haziq Aiman Rosol, Nurul Farah Adilla Zaidi, Najwa Azzahari, Sulaiman Wadi Harun

120 Utilising Deep Q-Network Reinforcement Learning for Resource Allocation in Dynamic Cellular Vehicle-to-Anything (C-V2X) Communications

Chew Eng Sing, Kaiyisah Hanis Mohd Azmi, Liyana Adilla Burhanuddin, Zatul Alwani Shaffiei

70 RoboSense: Real-World Dataset from Mobile and Fixed Sensors Suites for Industrial Hazard Monitoring in Egypt

Amr Khamis, Heba A. Shaban, Heba A. Fayed, Moustafa H. Aly

83 A Microcontroller-Based Self Adaptive Light Level Control System over LED Luminaires against

Hoda Elsharkawy , Ashraf A.M. Khalaf , Mohamed M.El-Dakroury

95 Enhanced Binary Image Transformer with Optical Flow Alignment for Remote Sensing Change

Ahmed Bakair, Rowayda Sadek, Hala Abdel–Galil, Marwa Moustafa, Ahmed Hesham

149 Ransomware Detection Using Machine Learning

Ahamd Said, Ahmed Abdel-Hafez, Hanady Issa, Khaled Shehata

Zoom Link: https://zoom.us/j/91533822258

13:45-15:45

Session 3 Mechanical Engineering -A

Room: B207

Chair: ***Prof. Sameh Shaaban***

Prof. Ahmad Abelatif

25 Experimental Evaluation of the Simplified Universal intelligent PID Controller for Maximum Power Point Tracking Under Rapid Irradiance Variation

Ahmed Ho. Salim, Mohamed I. Abu El-Sebah, Yasser I. El-Shaer

68 Design Parameters Optimization of a Solar Absorption Cooling System under Egyptian Weather Conditions

Mohamed Hassan, Mohamed Abd El-Hamid, Essam Elgendy

85 Sustainable Water Pumping in Egypt Optimal Operation of Photovoltaic-Driven Centrifugal Systems

Gasser Ghazaly , Ahmed Abdellatif, Sameh Shaaban

86 Energy and Exergy Analysis of a Hybrid Vapor Absorption Cooling System Driven by Photovoltaic Thermal Collector

Elsayed Allam, Mohamed Abdelhamid, Ahmed Abdellatif, Essam Elgendy

92 Comparative Analysis of Solar-Powered Multi-Stage Flash Desalination Sites in Egypt

Hassan Darwish, Ahmed Abdellatif, Sameh Shaaban

Wednesday, October 22nd, 2025

INVITED SSPEAKERS

9:00 – 9:30

INVITED Speech I

Room: Main Hall- Zone C

Chair: ***Prof. Sherin Youssef***

ENGINEERING INNOVATION AND COMMERCIALIZATION FROM MJIIT: A SKINCARE SPIN-OFF CASE STUDY

Associate Professor Ir. Dr. Pauziah binti Muhamad

Department of Mechanical Precision Engineering, Malaysia–Japan International Institute of Technology, Universiti Teknologi Malaysia

9:30 – 10:00

INVITED Speech II

Room: Main Hall- Zone C

Chair: ***Prof. Mona Fouad***

Application Development of Transportation Management System for Rural Area with Real-Time GPS Tracking and Emergency Response System

Dr. Syarifah Zyurina Nordin

Department of Management of Technology, Malaysia-Japan International Institute Of Technology, Universiti Teknologi Malaysia

10:00 – 10:45

INDUSTRIAL SESSION

Room: Main Hall- Zone C

Chair: ***Prof. Aliaa Youssef***

Engineering of Production-Ready Scalable Data-Driven AI Applications

Prof. Hisham Arafat

Dell, Egypt

11:15-13:00

Session 4 Computer Engineering -B

Room: B203

Chair: ***Prof. Emad Elsamahy***

Co-Chair: ***Dr. Zatul Alwani binti Shaffiei***

46 Physics-Informed Neural Networks (PINNs) for Flood Routing

Airil Haziq Airil Yasreena, Shahrum Shah Abdullaha, Siti Nur Khadijah Aishah Ibrahima, Halinawati Hirol,

76 Impact of Historical Data Length on LSTM and Single-Block Encoder-Decoder Transformer for Multi-Step Traffic Flow Forecasting

Mas Omar, Fitri Yakub, Azizul Azizan, Normaisharah Mamat, Inge Dhamanti, Niranjana Govindan, Dhaya Chinnathambi, Muliono Muliono, Cancio Monterio

131 Evaluating Machine Learning Models for CO2 Emissions Prediction

Hafizah Farhah Saipan Saipol, Syarifah Zyurina Nordin, Aizul Nahar Harun, Nurhazimah Nazmi, Muhammad Athif Mat Zin

134 Application Development of Transportation Management System for Rural Area with Real-Time GPS Tracking and Emergency Response System

Abdalla Mohamed Gaafar Mahmoud Ali, Syarifah Zyurina Nordin, Zatul Alwani Binti Shaffiei , Hafizah Farhah Saipan Saipol, Noratikah Abu

40 Comparative Analysis of Machine Learning Models for Predictive Maintenance: Challenges and Opportunities

Manal Helal, Stilianos Vidalis, Baari Ali, Frank Foerster, Eric Chiejina

Zoom Link: https://zoom.us/j/98136036047

11:15-13:00

Session 5 Mechanical Engineering - B

Room: B205

Chair: ***Prof. Ahmad Abelattf***

Co-Chair: ***Prof. Pauziah binti Muhamad***

47 **Development and Experimental Evaluation of a Spring-Like Multi-Stack Piezoelectric Energy Harvester for Low-Frequency Applications**

GuiShun Wong, LeeKee Quen, Eileen Lee Ming Su, HooiSiang Kang, KengYinn Wong, MengHee Lim

57 **Sustainable Energy and Water Production: Performance Analysis of Ocean Thermal Energy Conversion (OTEC) Driven Low Temperature Thermal Desalination**

Ahmad Aiman Azmi, Takafumi Morisaki, Tsutomu Nakaoka, Kevin Fontaine, Sathiabama T. Thirugnana, Fitri Yakub, Abu Bakar Jaafar, Yasuyuki Ikegami

80 **Formulation and Performance of NURBS-Divergence FEM (NDFEM) for the Scalar Heat Equation**

Norhidayah Rasin, Halinawati Hirol, Ahmad Razin Zainal Abidin, Mokhtazul Haizad Mokhtaram, Mohd Al-Akhbar Mohd Noor, Airil Yasreen Mohd Yassin

111 **CFD Simulation And Optimization Of Fluid Flow In PDMS Microfluid Channels For Biomedical Applications Using OpenFoam**

Nur Athirah Fatihah Binti Mohd Yusof , Mohamed Sukri Bin Mat Ali , Nurshafinaz Binti Maruai , IIhoon Jang, Akant Kumar Singh

127 **Generalization of Decision Tree Regression, K-Nearest Neighbors, and Artificial Neural Network for Forecasting Unseen Braking Scenarios Using IDM-Based Simulations**

Mas Omar, Fitri Yakub, Sharifah Munawwarah, Khairul Zahreen Mohd Arof, Gerald P Arada, Muhamad Zakiyullah Romdlony, Kamal MD Abdus Samad

Zoom Link: https://zoom.us/j/99931662021

11:15-13:00

Session 6 Applied Chemistry -A

Room: B207

Chair: ***Prof. Marwa Shalaby***

Co-Chair: ***Prof. Tamer Ismail***

41 **ADDITIVE MANUFACTURING OF SILICON-BASED THERMOELECTRIC MATERIALS VIA PHOTOPOLYMER RESIN 3D PRINTING**

Farah Liana Binti Mohd Redzuan, Muhammad Hariz Ihsan Bin Mohd Shahriz, Ubaidah Syafiq

114 **Effect of Zno-CaCO3 Nanoparticles on Surface Hardness of Nanocoating on S50C Carbon Steel**

Nurul Nabila Mohd Dina, Norhasnidawani Joharib, Mohd Aidy Faizal Joharia, Noor Azlina Hassanc , Abd Halim Md Alid , Rizal Arifine

116 **Microalgae Cultivation in Aquaculture Wastewater Using a Flat Panel Photobioreactor for Animal Feed Production**

Shaza Mohamad, pauziah Muhamad, Fatin Othman, Nurul Along, Kanimoli Tiyagarajan

132 **Effects of Media on Water Quality and Growth Performance of Ipomoea Aquatica in a Recirculating Aquaponic System (RAS)**

Diyanah Hadirah Zahidi, Siti Nur Syafika Ahmad Ismail , Wai Loan Liew , Hui Weng Goh

139 **The Advance Future of Algae as Source for Wellness Application: A Review**

Siti Hamidah Mohd Setapar, Sing Chuong Chuo, Akil Ahmad, Shaza Eva Mohamad, Fatin Syahirah Othman, Lee Peng Wong, Hasmida Mohamad Nasir

Zoom Link: https://zoom.us/j/91890214974

11:15-13:00

Session 7 Civil Engineering

Room: B209

Chair: ***Prof. Mostafa Selim***

Co-Chair: ***Dr. Mohamed Magdy***

18 **Baseline Evaluation of Indoor Environment and Thermal Comfort Survey in Malaysian School**

Naja Aqilah, Sheikh Ahmad Zaki, Noor Alam, Yasir Arafat, Sirui Wu, Fitri Yakub

77 **ANTECEDENT RAINFALL AS LANDSLIDES TRIGGERING FACTORS ALONG FEDERAL ROAD OF SIMPANG PULAI – BLUE VALLEY**

Rabeah Adawiyah Hashim, Faizah Che Ros, Aniza Ibrahim, Shahrum Shah Abdullah, Fazilah Hatta, Nursalbiah

150 **CONSTRUCTED WETLAND MODEL WITH INTERACTION IN AN ENVIRONMENT**

Amir Syafiq Syamin Syah Amir Hamzah, Irwan Iqbal Ihsanuddin, Zatul Alwani Shaffiei

55 **UTILIZATION OF WASTE POLYETHYLENE TEREPHTHALATE POWDER IN SOLID CEMENT**

Abdelrahman Tarek Ashmawi, Ola Diaa El-Monayeri, Hassan Ahmed Hassan

23 **Incorporating Waste Plastic and Glass Powders in Geopolymer Concrete**

Omar Amer Hamed, Ola D. EL Monayeri, Hassan Ahmed Hassan

Zoom Link: https://zoom.us/j/99867519166

13:00-15:00

Session 8 Computer Engineering -C

Room: B203

Chair: *Prof. Nahla Belal*

Co-Chair: *Dr. Syarifah Zyurina Nordin*

34 **Cognitive NLP for Mental Health: A Multi-Task Learning Approach for Depression Detection and Severity Assessment**

Mennatullah Mamdouh Eldakhakhni, Marwa Abdellah , Mohamed Mostafa Fouad

37 **Strengthening Parent-Child Relationships Through Multimodal Emotional And Behavioral Analysis**

Hoda Amr Elhemaly, Aya Salama Abdelhady

49 **Gamifying Agile Retrospectives: An Inclusive Framework to Enhance Team Dynamics Through the Hexad Personality Model**

Yara Hisham, Nada H. Sherief, Mohamed Shaheen

60 **A Comparative Study of Association Rule Mining Algorithms for Enhanced Drug-Drug Interaction and Adverse Drug Reaction Discovery**

Alaa Mohamed, Liqaa Tarek, Samaa Maged, Mohamed Safy

73 **Generating Photorealistic Images for Helping Learning Disabilities**

Hagar Muhamed, Mohamed Safy Mousa, and Nahla A. Belal

74 **Clustering Fake vs. Real News Using Unsupervised Text Features**

Mariam Ghoniem, Sara Mohamed, Mohammed Safy

13:00-15:00

Session 9 Computer Engineering -D

Room: B205

Chair: *Prof. Mohamed ElMahallawy*

Co-Chair: *Dr. Fitri Yakub*

28 **Enhancing Climate Prediction Accuracy: A Comparative Analysis of AI-Driven Models and CMIP6 for Climate Forecasting in Arid Regions A Case Study of South Sinai, Egypt**

Karim Tarek, Mohamed Elsayad, Mohamed S. Eid

30 **Hybrid EDF Scheduling with Priority Inheritance over TDMA-CAN Networks for Fault-Tolerant Real-Time Embedded Systems**

Wael Badawy

81 **TACD: A Hybrid Framework for Topic-Aware Community Detection in Multilingual Social Networks**

Ahmed Mahdy, Mohamed Abdelazim , Osama Mohamed

84 **Semi-Supervised Mental Health Classification in Chatbot Conversations**

Alaa Mohamed, Liqaa Tarek, Samaa Maged, Mohamed Safy

90 **I3D-MHSA+: Signed Word Recognition via Efficient Ensemble I3D Models and Soft Attention**

Shimaa Samy Younes, Hala Abdel-Galil , Rowayda Ahmed Sadek

100 **AI-Driven Mock Interview Simulation Using Retrieval-Augmented Generation and Multimodal Trait Analysis**

Ezz ElDin Walid ElNaggar, Bassel Attia, Mohannad Taman, Dalia Sobhy

13:00-15:00

Session 10 Applied Chemistry -B

Room: B207

Chair: *Prof. Marwa Shalaby*

Co-Chair: *Prof. Tamer Ismail*

59 **Thermogravimetric Catalytic Pyrolysis of Mixed HDPE and PET over NiO modified CaO-Derived Chicken Eggshell: Kinetic Analysis via Coats-Redfern Integral Method**

Muhammad Amir Aqil Mohamad Dzol,Vekes Balasundram,, Norazana Ibrahim, Ruzinah Isha, Le Kim Pham Hoang, Suan Shi

88 **Leveraging Thermochemical Equilibrium and Supervised Learning Approaches for Optimal Operation of Biomass Feedstocks in Air Gasification Systems**

Nor Syuriaty Jaafar, Noor Fatina Emelin Nor Fadzil, Ali Abbas , Norhuda Abdul Manaf

112 **Bamboo Based Nanobubble Prototype for Enhancing the Growth of Azolla Pinnata**

Nur Ayunni Masri, Pauziah Muhamad, Vikneshvaran Tanabalam, Shaza Eva Mohamad, Mohamad Amiruddin Ismail

62 **Targeting CDK4 with Nanoparticles: In Silico Approach for Improvement of Cancer Therapy**

Mona Hussein Ibraheim, Ahmed Taher Elhendawy, Ibrahim Mohamed Khater

Zoom Link: https://zoom.us/j/91890214974

13:00-15:00

Session 11 Applied Mathematics

Room: B209

Chair: ***Prof. Wael Abbas***

Co-Chair: ***Prof. Hany Kaldas***

6 A Spectral Collocation Approach for Solving Heat and Mass Transfer in Casson Nanofluid Flow over a Convectively Heated, Slippery Stretching Sheet

Mohamed Mostafa, Wael Abbas, Mohamed Ibrahim, Mohamed fathy

50 B-Spline Interpolation and Curve Fitting Via Discrete Geometric Distance

Motasem Mahmoud Elshourbagy, Ahmed Yehia Sayed, Hesham Abdel Moez Abdel Gawad, Mohamed Mostafa Farghal, Naglaa Fawzy Saudy

87 Solving the Fractional Differential equations Using Collocation Genocchi Method

Noha A. Hussien , Mohamed Fathy, Ahmed Y. Sayed, Khaled M. Abdelgaber

91 Numerical Study of the Two-Dimensional Hyperbolic Telegraph Equation Using Chebyshev Collocation Method

Ali R. Elmahdy, Mohamed Fathy, Ahmed Y. Sayed, Khaled M. Abdelgaber

105 Collocation Method for Solving the Fractional Partial Differential Equation Using the Second Kind Chebyshev Polynomials

Aya Hassan, Khaled M. Abdelgaber, Mohamed Fathy, and Emad A. Sayed

119 Non-linear error detection for Nth Degree Truncated Polynomial Ring Units using Robust nonlinear residue codes

Naglaa Fawzy AbdElfatah Saudy, Ahmed Yehia Sayed

Thursday, October 23th, 2025

9:00-9:30

INVITED Speech III

Room: Room A

Chair: ***Prof. Mohamed Hassan***

Smart Devices and AI-Powered IoT: Transforming Urban Farming, Healthcare, Transportation, and Disaster Resilience

Dr. Fitri Yakub

Department of Electronic Systems Engineering, Malaysia-Japan International Institute of Technology, Universiti Teknologi Malaysia

9:30 - 10:00

INVITED Speech IV

Room: Room A

Chair: ***Prof. Moataz Hegazi***

A Facial Recognition–Based Attendance and Reward System for Advancing SDG4 and SDG10 in Orang Asli Communities

Dr. Zatul Alwani binti Shaffiei

Department of Electronic Systems Engineering, Malaysia-Japan International Institute of Technology, Universiti Teknologi Malaysia

10:30-12:15

Session 12 Computer Engineering –E

Room: B203

Chair: ***Prof. Safa Gasser***

Co-Chair: ***Dr. Dina Ragab***

115 Leveraging DBScan and Graph Embedding for Bike Sharing Demand Prediction

Ahmed Elsabbagh, Mohamed Safy, EssamEldean Elfakharany

118 Forecasting of the Final Projects' Cost in the Construction Industry– Machine Learning Approach

Nadeen Rashwan, Akram Soltan, Ahmed Ehab, AlHussein Ibrahim

122 GazeXTextNet: Multimodal Deep Learning Framework for Improved Chest X-ray Based Disease Diagnosis

Youssef A. Mehanna, Radwa Fathalla, Mohamed Shaheen

123 HFG: Hierarchical-flow Graph Representation Learning Towards Performance Optimization

Mohamed Ibrahim Attalla, Mohamed Shaheen, Ahmed Abouelfarag

124 A Comparative Analysis of Three Algorithms for Robust BESS Planning to Minimize System Cost under Uncertainty

Mirna Fouad Ali

10:30-12:15

Session 13 Industrial Engineering

Room: B205

Chair: ***Prof. Mostafa Rostom***

Co-Chair: ***Prof. Tamer Ismail***

140 InstruGate: Enhancing B2B Procurement Efficiency in Industrial SMEs through an Integrated Real-Time Communication and Quotation System

Adrian Norman Khusairi, Chin Chea Neo, Zatul Alwani Shaffiei

3 Implementing Kaizen in Quality 4.0: A Framework for Medium-Sized Enterprises in Developing Countries for Waste Reduction

Soheir Backar, Moustafa H. Aly, Engy Ghoniem, and Shaza Elmenshawy

4 Optimization of Fused Deposition Modelling (FDM) Spline Quality Characteristics using Plan Do Check Act (PDCA) and Taguchi

Shaza Elmenshawy, Dalia Mahmoud, Moustafa H. Aly, Soheir Backar

98 Optimizing Production Planning for Flat Steel Plants Under Energy and Emissions Constraints

Anas Tarek Rashad, Noha M. Galal, Khaled S. El-Kilany

Zoom Link: https://zoom.us/j/93564964610

10:30-12:15

Session 14 Mechanical Engineering - C

Room: B207

Chair: ***Prof. Yasser Elshaer***

Co-Chair: ***Dr. Hossam Hassib***

136 Emission Analysis for Carbon Nanotube Synthesis from Sustainable Fuels

Harrish Raj Murali , Nicholas Goh Xian Qi, Lum Jia Ming , Lau Jun Tsuen, Muhammad Amirrul Amin Mooen, Chong Jia Yong, Muhammad Thalhah Zainal

93 Modelling and Control of Coaxial Spherical Parallel Manipulator

Hajar A. Adam, Waleed A. M. Wahba, Moustafa A. Fouz, Mostafa. R.A. Atia

96 Enhancing Centrifugal Pump Performance by Varying the Pump Rotational Speed, Number of Blades, and Working Fluid Characteristics

Mohamed Noureldin, Hassan El-Gamal, Ahmed Hanafy, Kamal Ibrahim3, Rola Afify

99 An Analytical Thermo-Mechanical Investigation for Couette Flow of Non-Newtonian Nano fluids with Dynamic Wall Slip

Youssef Mohamed Abd el Mohaimen, , Ali Y. Ellithi, A. F. Ghaleb, Shaaban I. Ahmed

135 Optimizing Production Efficiency and Mechanical Performance of 3D-Printed XPETG-CF Fasteners: Influence of Infill Percentage and Pattern on the Mechanical Properties of Bolts Produced by Additive Manufacturing

Hashem Feisal Amer, Moustafa Rostom Atia, Author, Amany Khaled

Zoom Link: https://zoom.us/j/93756736899