



Arab Academy
for Science, Technology & Maritime Transport

35th International Conference on Computer Theory and Applications

ICCTA 2025

25-27 November 2025
Alexandria, Egypt

Under the Auspices of

**H.E. Dr. Ahmed Abouel Gheit
Secretary-General, League of Arab States**

Conference Program



 **IEEE**
Alexandria Subsection



DAY 1 - Tuesday, November 25th, 2025

Venue: AASTMT Presidency Building, AbuQir and Online

10:00 Registration

11:00 Opening Session and Keynote Speech

Welcoming Speeches

Prof. Dr. Ayman Abdel-Hamid

Dean – College of Computing and Information Technology (Alexandria)
Arab Academy for Science, Technology, and Maritime Transport
Conference Coordinator

Prof. Dr. Maha Elsabrouty

IEEE Alexandria Subsection Chair
Egypt-Japan University of Science and Technology, Egypt

Prof. Dr. Ahmed Madian

IEEE Egypt Section Chair
Nile University, Egypt

Prof. Dr. Yasser Elsonbaty

Vice President for Education and Students Affairs
Arab Academy for Science, Technology, and Maritime Transport

Prof. Dr. Alaa Abdelbary

Vice President for Postgraduate Studies and Scientific Research
Arab Academy for Science, Technology, and Maritime Transport

H.E. Prof. Dr. Ismail Abdel Ghafar Ismail Farag

President – Arab Academy for Science, Technology, and Maritime Transport

H.E. Prof. Dr. Yousry El Gamal

Former Minister of Education, Egypt
President, Computer Scientific Society

Keynote Speech

“AI is reshaping The Future of Medicine and Healthcare”

H.E. Prof. Dr. Yousry El Gamal

12:00 Coffee Break

DAY 1 - Tuesday, November 25th, 2025 (Cont'd)

12:30 Keynote Speech

Moderators: Prof. Dr. Yousry El Gamal, Prof. Dr. Ayman Abdel-Hamid, and Prof. Dr. Mohamed Kholief

“National Innovation Policy: Transforming to Knowledge Economy”

Prof. Dr. Hossam Osman

Deputy Minister of Higher Education and Scientific Research for Innovation, AI,
and Scientific Research, Egypt

13:00 Keynote Speech

Moderators: Prof. Dr. Yousry El Gamal, Prof. Dr. Ayman Abdel-Hamid, and Prof. Dr. Mohamed Kholief

“Creating a Sustainable Ecosystem to Support Cyber Workforce Development: Reflections and Lessons”

Prof. Dr. Waleed Farag

Professor of Computer Science - Director of Institute for Cybersecurity
Indiana University of Pennsylvania, USA

13:30 Keynote Speech

Moderators: Prof. Dr. Yousry El Gamal, Prof. Dr. Ayman Abdel-Hamid, and Prof. Dr. Mohamed Kholief

“Scaling Quantum Research, Education and Industry in Egypt”

Prof. Dr. Ahmed Younes

Professor of Quantum Computer Science
Alexandria University and Alamein International University, Egypt

14:00 Lunch

End of Day 1 Activities - ICCTA 2025

DAY 2 - Wednesday, November 26th, 2025

Registration: Farsi Hall – College of Engineering and Technology- AbuQir

2 Parallel Sessions: Session I and Session II

9:00 - 11:30 Session I

Venue: Farsi Hall – College of Engineering and Technology- AbuQir and Online

Session I Cybersecurity, Networks, and HPC
<i>Chairs: Prof. Dr. Ayman Abdel-Hamid</i>
Intelligent Scheduling of AI Tasks in Kubernetes
Michael Abdelshaheed and Mohamed Ashour (German International University, Germany)
Explainable Heterogeneous Federated Learning for Intrusion Detection in IIoT
Tony Elsayed (German International University, Germany), Marwa Zamzam (German International University, Egypt) and Mohamed Ashour (German International University, Germany)
MLRFC-MIFSA: A Hybrid Feature Selection and Classification Method for Sustainable IoT and WSN Applications
Mai Hussain Ahmed Hussain, Mohamed R.M. Rizk (Alexandria University, Egypt) and Ali Gaber M. Ali (Alexandria University and Alamein International University, Egypt)
A Hybrid AI-Based Model for Cyberattack Detection and Mitigation
Herme Gianni Del Pino Mejia, Miguel Angel Espinoza Surichaqui, and Jymmy Stuwart Dextre Alarcon (Peruvian University of Applied Sciences, Peru)
Optimizing Energy Consumption in WSNs via HSFCO: A Nature-Inspired Hybrid Meta Heuristic
Amira A. Eissa and Saleh Mesbah (Arab Academy for Science, Technology and Maritime Transport, Egypt)
FAIR - Federated Agreement for Independent Resolution: a cross-chain decision-making protocol
Rosa Pericàs-Gornals and Jaume Ramis-Bibiloni (Universitat de les Illes Balears, Spain)
Free Space Optical Channel Under Fog: Enhanced Performance Using MDRZ Technique
Moustafa S. Ahmed (Alexandria University, Egypt), Amira I. Zaki, Moustafa H. Aly and Heba A. Fayed (Arab Academy for Science, Technology and Maritime Transport, Egypt)
Optimized Image Filtering and Multi-Task Deep Learning for Fingerprint Recognition
Abdelrahman Nabil Salaheldin, Khaled Ahmed Hussein and Tamer M. Nassef (MSA University, Egypt)
A Multi-Methodological Validation of Correlation between Generative Engine Optimization and Search Engine Optimization Performance
Dalia Gamal, Ahmed Sedky and Saleh Mesbah (Arab Academy for Science, Technology and Maritime Transport, Egypt)

Session I Cybersecurity, Networks, and HPC
PEX-IDS: Advanced Performance Excellence IoT Detection System Using Deep Learning and Explainable AI Mostafa Mohamed, Saad M. Ibrahim (Alexandria University, Egypt), Amr A. Abohany (Damanhur University, Egypt) and Muhammad Mahmoud (Matrouh University, Egypt)
Explainable Memory-Based Malware Detection with Time-Aware Features and Ablation Insights Amr M. El-Husseiny (Integrated Information Systems Center, Egypt), Ahmed Abdelrahman and Ahmed M. Mattar (Military Technical College, Egypt)

DAY 2 - Wednesday, November 26th, 2025 (Cont'd)

9:00 - 11:30 Session II

Venue: Room 303 – College of Engineering and Technology- AbuQir and Online

Session II Software Engineering and Information Systems
<i>Chairs: Prof. Dr. Saleh Mesbah and Dr. Nada Hany</i>
A Novel Quality Model for Education Management Information Systems: Insights from the OpenEMIS Case Study in Jordan Ahmad Althunibat, Abdelrahim Emad Mehyar (Al-Zaytoonah University, Jordan), Seif hashem Alazzam, Naif Alzriqat (Philadelphia University of Jordan, Jordan) and Bassam M. Al-mahadeen (Mu'tah University Alkarak, Jordan)
Method for Identifying Changes Between Program Versions Mariam Arutunian, Hripsime Hovhannisyan, Arthur Malajyan, Karen Avetisyan and Hayk Aslanyan (Russian-Armenian University, Armenia)
Evidence-Aware Islamic Misinformation Detection on social media Esraa Hamdy, Tarek Elghazaly and Sara Saad Eldin (Cairo University, Egypt)
CS2AnalyticsApp: a Multi-player Shooter Game Analytics Framework Youssof Eshrah and Yomna M.I. Hassan (German University in Cairo, Egypt)
Context-Aware Pipeline for Automated Code Review Using Large Language Models Fatma Abdalgalil, Gehan Sherif, Marwan Mohamed and Nasrah Maragaa (Zewail City of Science and Technology, Egypt)
Decentralized Clustering for Customer Segmentation: Evaluating Federated Learning with RFM Features Loai khairalla, Mohamed Soliman Halawa and Essam Elfakharany (Arab Academy for Science, Technology and Maritime Transport, Egypt)

Session II Software Engineering and Information Systems
Factors for an EOD Technician Readiness Framework: An Exploratory Study Amr Ehab Shokry, Nada Hany Sherief (Arab Academy for Science, Technology and Maritime Transport, Egypt), Ahmed Mohsen Osman (Egyptian EOD School, Egypt) and Muhammed Abu Rizka (Arab Academy for Science, Technology and Maritime Transport, Egypt)
Evaluating Emotion-Adaptive Non-Player Characters: Player Perception, Immersion, and Systemic Challenges in Sentiment-Driven Interaction Amr Mamdouh, Leila Alsharkawy, Faris Sharara and Doaa Shawky (Zewail City for Science and Technology, Egypt)
Blockchain Technology in Maritime Supply Chains in Egypt Khaled Mahar, Ahmed Hesham, Saleh Mesbah and Osama Saber (Arab Academy for Science, Technology and Maritime Transport, Egypt)
CLO-Driven Personalized Remediation Framework for Post-Requisite Course Success in Higher Education Wagdi Alrawagfeh, Robert Ford and Abdulhalim Dandoush (University of Doha for Science and Technology, Qatar)
Tool to Reduce Student Attention Difficulty during Online Classes using CV Huaman Barrial, Omar Antonio, Flores Astovilca Daysy Xiomara, and Jymmy Stuwart Dextre Alarcon (Peruvian University of Applied Sciences, Peru)

11:30 Coffee Break

DAY 2 - Wednesday, November 26th, 2025 (Cont'd)

12:00 - 13:00 Session III

Venue: Farsi Hall – College of Engineering and Technology- AbuQir and Online

Session III Intelligent Computing I
<i>Chairs: Prof. Dr. Khaled Mahar and Prof. Dr. Waleed Abdel Moez</i>
SOCAL: A Proof-of-Concept for a Conversational AI-Powered Educational Social Media Platform Mohamed Ibrahim Abdelaziz and Laila Shoukry (Alamein International University, Egypt)
Enhancing Lung Cancer Detection with Attention Mechanisms and Unified Ensemble Learning: A Hybrid Feature Fusion Approach Md Abu Yusuf, Madhusodan Chakraborty (Maharishi International University, USA), Md Mehedi Hasan Bhuiyan Nipu (North South University, Bangladesh) and Md Niamul Ahsan (European University Viadrina, Germany)

Session III Intelligent Computing I
Enhancing Arabic Response Generation with Domain-Specific Adaptation of Jais-1.3B Tamer Z. Emara, Heba Ahmed Elfiki, Abeer Saber (Damietta University, Egypt), Thanh Trinh (Phenikaa University, Vietnam) and Wael A. Awad (Damietta University, Egypt)
Digital DNA Sequences Mechanism and Malware Detection for encrypted images using CNN Samar Sami, Nada Abdel Aziem and Aliaa Youssif (Arab Academy for Science, Technology, and Maritime Transport, Egypt)
Session III to be continued after Keynote Speech

13:00 Keynote Speech

Moderators: Prof. Dr. Yousry El Gamal, Prof. Dr. Ayman Abdel-Hamid, and Prof. Dr. Mohamed Kholief

“Impact of IEEE Computer Society in Advancing Technologies, including LLM/AI and Software Engineering”

Prof. Dr. Hironori Washizaki

IEEE Computer Society 2025 President

Professor of Computer Science - Waseda University, Japan

13:30 - 15:00 Session III (Continued)

Venue: Farsi Hall – College of Engineering and Technology- AbuQir and Online

Session III (Continued) Intelligent Computing I
<i>Chairs: Prof. Dr. Khaled Mahar and Prof. Dr. Waleed Abdel Moez</i>
Remaining Useful Life Prediction driven by LLMs using few-shot learning Hany Hanafy Mahmoud Said (Arab Academy for Science, Technology and Maritime Transport, Egypt) and Ahmed Hanae Kassem (Alexandria Higher Institute of Engineering and Technology, Egypt)
Survey of Emerging Trends in Artificial Intelligence for Bioinformatics Sahar I. Ghanem (Pharos University, Egypt)
Machine Learning Data-Driven Fouling Diagnostics for Marine Engine Cooling Systems Anwar Magy, Ahmed Hebala (Arab Academy for Science, Technology and Maritime Transport, Egypt), Mohab Gaber (Egyptian Navy, Research and Development, Egypt) and Mostafa S. Hamad (Arab Academy for Science, Technology and Maritime Transport, Egypt)

Session III (Continued) Intelligent Computing I
Enhancing LLM Reliability and Efficiency with Query Refinement in Retrieval Augmented Generation Aya Mohamed Abd ElHamied, Ahmed A. AboelFarag and Yasser El-Sonbaty (Arab Academy for Science, Technology and Maritime Transport, Egypt)
An Efficient Deep Learning-Based Detection Pipeline for Revealing Obstacles Using YOLO v11 Amir Monem, Mahmoud Shawki, Ahmed Sameh and Wael Badawy (Egyptian Russian University, Egypt)
Artificial Intelligence in Film Production Design: 3D Printing, Smart Materials, and the Future of Immersive Cinema Riham Hilal (Egypt-Japan University of Science and Technology, Egypt)
SpikingU-Net with Particle Swarm Optimization Thresholding for Structural MRI Segmentation and Functional MRI-Based Autism Spectrum Disorder Classification Eman Ahmed Abd Elkader (Arab Academy for Science, Technology and Maritime Transport, Egypt), Yasser Fouad Hassan (Alexandria University, Egypt) and Saleh Mesbah Elkaffas (Arab Academy for Science, Technology and Maritime Transport, Egypt)

15:00 Lunch

End of Day 2 Activities - ICCTA 2025

DAY 3 - Thursday November 27th, 2025

Registration: Farsi Hall – College of Engineering and Technology- AbuQir

2 Parallel Sessions: Session IV and Session V

9:00 - 11:30 Session IV

Venue: Farsi Hall – College of Engineering and Technology- AbuQir and Online

Session IV Intelligent Computing II
<i>Chairs: Prof. Dr. Ossama Badawy and Prof. Dr. Mohamed Kholief</i>
AI-Augmented Multiple Model TPMBM Filter For Tracking Maneuvering Objects Ibrahim Salim (Ain Shams University, Egypt), Nermeen Okasha (Modern Academy for Engineering and Technology, Egypt) and Wagdy Anis (Ain Shams University, Egypt)
Enhancing Human Faces Generated with Deep Learning Ramez Ghabrial (German University in Cairo, Egypt)
Leveraging Integrated Knowledge for Enhanced Multimodal Lung Cancer Prediction Rodina Ahmed, Mohamed Abo Rizka (Arab Academy for Science, Technology and Maritime Transport, Egypt) and Noura Elmaghawry (The British University in Egypt, Egypt)
Inter-Modality Visual Feature Fusion in Transformer-Based Video Highlight Detection Salma M. Elsayed, Noha S. Tawfik, Dalia Sobhy and Sherine Nagy Saleh (Arab Academy for Science, Technology and Maritime Transport, Egypt)
SteinEmbed: Learning Word Representations Through Geometric Space Optimization Youssef S. Soliman, Moataz A. El Zayat (Alexandria University, Egypt) and Amr M. Amin (Matrouh University, Egypt)
Physics-Informed Neural Networks for Anisotropic Cardiac Activation Mapping Mohamed A. M. Gad, Sherif M. M. El-Gendy, Mazen A. A. Atlam and Ahmed S.A. Mohamed (Cairo University, Egypt)
Context-Aware Gaze-Based Interaction for Users with Motor Disabilities: A Low-Cost and Calibration-Free Approach Habiba Mekay, Wessam Mohamed Reda, Rawan Wagih and Doaa Shawky (Zewail City of Science and Technology, Egypt)
DAgent: A Multi-Agent System for Device-Aware Assistance Ahmed Hassan, Ahmed Gamea, Omar Abdelgawad, Abdelaziz Serour, Eyad Hussien, Amr Khamees, Ahmed Abdalfatah (Egypt-Japan University of Science and Technology, Egypt) and Ahmed Fares (Benha University, Egypt)
Evaluating the Effect of Feature Binarization on 1D-CNN Based Intrusion Detection Systems Mohamed El-Sherif, Ahmed Khattab and Magdy El-Soudani (Cairo University, Egypt)

Session IV Intelligent Computing II
Efficient Edge-Compatible CNN for Speckle-Based Material Recognition in Laser Cutting Systems Mohamed Abdallah Salem (North Dakota State University, USA) and Nourhan Zein Diab (New Mansoura University, Egypt)

DAY 3 - Thursday November 27th, 2025 (Cont'd)

9:00 - 11:30 Session V

Venue: Room 303 – College of Engineering and Technology- AbuQir and Online

Session V IoT, Robotics, and NLP
<i>Chairs: Prof. Dr. Amira Zaki and Dr. Yasmine Nagi</i>
Coordinated Formation and Resilience in Mobile Multi-Robot Systems: Consensus-Based Control in Dynamic Environments Esraa Hussien (New Giza University, Egypt), Sameh Saad (Conventry University Branch, Egypt) and Moutaz Hegaze (Arab Academy for Science, Technology and Maritime Transport, Egypt)
Advanced and Optimized MIMO Control Algorithms for Defensive Strategy of an Air to Surface Missiles Belkacem Bekhiti (Blida University, Algeria), Kamel Hariche (University Boumerdes, Algeria) and Abdel-Nasser Sharkawy (Qena University, Egypt)
Building a Framework Towards Intelligent Robotic Process Automation Capabilities Doha Rahma, Mohamed Aborizka and Menna Kamel (Arab Academy for Science, Technology and Maritime Transport, Egypt)
Optimization Based Inverse Kinematics Solution Of 6 DOF Robot Mustafa Osman Bayoum, Mostafa Abdelgeliel, El- sayed Saber (Arab Academy for Science, Technology and Maritime Transport, Egypt) and Hassan El-Gamal (Alexandria University, Egypt)
AI-Driven Adaptive Selection Modes for Enhanced Performance in Fog-Assisted RANs Eman A. Anowr, Heba M. Abdel-Atty (Port Said University, Egypt), Mohamed A. Mohamed (Mansoura University, Egypt) and Mona Nashaat (Port Said University, Egypt)
A Lightweight and Context-Aware YOLOX Detector for SAR Ship Detection Abdelrahman Yehia, Ibrahim Sh. Sanad, Mohamed Hanafy (Military Technical College, Egypt), Emad A. Elsamahy (Arab Academy for Science, Technology, and Maritime Transport, Egypt) and Ashraf Helmy (National Authority for Remote Sensing and Space Sciences, Egypt)
Deep Koopman Model Predictive Control for High-Precision Tracking of Delta Robots Haitham El-Hussieny (Egypt-Japan University of Science and Technology, Egypt)

Session V IoT, Robotics, and NLP
Hybrid Decision-Making for Trajectory Planning in IoT-Connected Multi-Robot Systems Using A* Neural Networks Mohamed Dwedar and Alexander Jesser (Heilbronn University of Applied Science, Germany)
Vocalized Arabic-English Parallel Corpus: A High-Quality Resource for Machine Translation and Diacritization Eman Khater, Mohamed Elemam, Mohamed Aborezka and Khaled Mahar (Arab Academy for Science, Technology and Maritime Transport, Egypt)
Time-Variant Transformer for Predicting Alzheimer's Disease Progression from Longitudinal Data Habiba Assem Sharaf, Mohamed Hamed Kholief and Hany Hanafy Mahmoud Said (Arab Academy for Science, Technology and Maritime Transport, Egypt)
Deterministic and Fault-Tolerant Embedded Systems with EDF-PI and TDMA-CAN Wael Badawy (Egyptian Russian University, Egypt)

11:30 Coffee Break

DAY 3 - Thursday November 27th, 2025 (Cont'd)

12:00 - 14:30 Session VI

Venue: Farsi Hall – College of Engineering and Technology- AbuQir and Online

Session VI Intelligent Computing and Information Systems
<i>Chairs: Prof. Dr. Mohamed Shaheen and Dr. Radwa Fathallah</i>
IoT based Paralysis Patient Health Care System Albashir A. Youssef (Arab Academy for Science, Technology and Maritime Transport, Egypt)
Predictive Model for Detecting Traffic Accident Risks using Random Forest in the Transport Sector Herme Gianni Del Pino Mejia, Miguel Angel Espinoza Surichaqui, and Jymmy Stuwart Dextre Alarcon (Peruvian University of Applied Sciences, Peru)
Equal Weighting, Unequal Impact: A Qualitatively Validated Model for Context-Specific Prioritization of IS-Enabled Procurement Maturity Domia Lloyd Zakharia (Arab Academy for Science Technology and Maritime Transport, Egypt), Ramadan Mowad (Future University, Egypt) and Ahmed Hesham Sedky (Arab Academy for Science, Technology and Maritime Transport, Egypt)

Session VI Intelligent Computing and Information Systems
Enterprise Governance of Information Technology (EGIT) Maturity Assessment Using Large Language Models Mostafa Alshamy (EGYBYTE, Egypt), Adnane Ghannem (Ahmed Bin Mohammed Military College, Qatar), Hany Ammar (Galala University, Egypt), Walid Abdelmoez (Arab Academy for Science, Technology and Maritime Transport, Egypt) and Aly Maher Abdelfattah (Galala University, Egypt)
Tensor Methods Outperform Transformers: A Comprehensive Comparative Analysis of Knowledge Graph Link Prediction Methods Manal Helal and Hammad Khawaja (University of Hertfordshire, UK)
Achieving Sustainable Connectivity in Agriculture through AI-Powered Beamforming Mohamed Naeem (Arab Academy for Science, Technology and Maritime Transport, Egypt)
Hybrid Deep Learning Framework for Lung Cancer Detection Using GAN-Augmented ResNet–ViT Fusion Marwa M. Emam and Essam H. Houssein (Minia University, Egypt)
Methodology for building a Silver Arabic Corpus for segmentation Hussein Awdeh, Mai Khalil, Omar Saadiyeh, Gilles Bernard (University of Paris, France), Mohammad Hajjar (Lebanese University, Lebanon) and Alaaeddine Ramadan (American University of Bahrain, Bahrain)
Enhancing the Production Scheduling in a Multi-Product Powdered Mix Factory Lina Ismail, Farida Haytham Wagdy, Mayar Essam Yassin and Khaled S.El-Kilany (Arab Academy for Science, Technology and Maritime Transport, Egypt)
Intrusion Detection System Using Distributed Deep Learning: An Optimized Pipeline to Speed up High-Dimensional Data Learning Nour El-din Fathy, Yasmine N.M. Saleh and Khaled Mahar (Arab Academy for Science, Technology and Maritime Transport, Egypt)

End of ICCTA 2025 Activities

ICCTA 2025 Committees

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