

2025 IEEE International Conference on E-Business Engineering (ICEBE 2025)

**Buraydah, Al-Qassim, Saudi Arabia
10-12 November 2025**



**IEEE Catalog Number: CFP25EBE-POD
ISBN: 979-8-3315-9039-0**

**Copyright © 2025 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP25EBE-POD
ISBN (Print-On-Demand):	979-8-3315-9039-0
ISBN (Online):	979-8-3315-9038-3
ISSN:	2372-1723

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

2025 IEEE International Conference on E-Business Engineering (ICEBE) ICEBE 2025

Table of Contents

Message from the General Chairs	xii
Message from the Program Chairs	xiii
Organizing Committee	xv
Program Committee	xvii

Track 1

The Role of Explainable AI in Knowledge GraphBased Drug Repurposing: Bridging Trust and Discovery	1
<i>Marwa Mustafa (University of Technology Sydney, Australia), Firas Al-Doghman (University of Technology Sydney, Australia), Farookh Hussain (University of Technology Sydney, Australia), Mohamed Awadallah (University of Technology Sydney, Australia), and Mohammed Ali (DSTI School of Engineering, France)</i>	
LLM-MVs: An LLM-Enhanced Materialized Views-Based Query Rewriting System	8
<i>Chong Sun (South-Central Minzu University, China; Hubei Provincial Engineering Research Center for Intelligent Management of Manufacturing Enterprise, China), Hao Hu (South-Central Minzu University, China; Hubei Provincial Engineering Research Center of Agricultural Blockchain and Intelligent Management, China), Huili Zhang (South-Central Minzu University, China; Hubei Provincial Engineering Research Center for Intelligent Management of Manufacturing Enterprise, China), Enqing Wu (South-Central Minzu University, China; Hubei Provincial Engineering Research Center of Agricultural Blockchain and Intelligent Management, China), and Jiahao Yan (South-Central Minzu University, China; Hubei Provincial Engineering Research Center of Agricultural Blockchain and Intelligent Management, China)</i>	
Explainable AI for Knowledge Graph-Based Drug Repurposing: Methods, Challenges, and Interpretability Frameworks	15
<i>Marwa Mustafa (University of Technology Sydney, Australia), Firas Al-Doghman (University of Technology Sydney, Australia), Farookh Hussain (University of Technology Sydney, Australia), Mohamed Awadallah (University of Technology Sydney, Australia), and Mohammed Ali (DSTI School of Engineering, France)</i>	
LLM-Powered ChatOps Approach to Microservice Deployment Pipeline Automation and Monitoring	24
<i>Guan-Hong Lai (National Taiwan Ocean University, Taiwan), Shang-Pin Ma (National Taiwan Ocean University, Taiwan), and An-Yu Li (National Taiwan Ocean University, Taiwan)</i>	

Track 2

- An AP-Based Drone Swarm Clustering Framework for Efficient and Reliable Service Discovery 32
Nuo Chen (Shanghai Jiao Tong University, China), Han Yu (Shanghai Jiao Tong University, China), Bingqing Shen (Shanghai International Studies University, China), Tieying Li (National Key Laboratory of Avionics Integration and Aviation System-of-Systems Synthesis, China), and Hongming Cai (Shanghai Jiao Tong University, China)
- Ship Design Report Generation Based on Large Language Models 40
Min Zhu (Shanghai Jiao Tong University, China), Jianwei Song (CSSC SEAGO SYSTEM TECHNOLOGY CO., LTD, China), Chenghang Liu (Shanghai Jiao Tong University, China), Jingjing Ai (CSSC SEAGO SYSTEM TECHNOLOGY CO., LTD, China), Xirui Xiong (Shanghai Jiao Tong University, China), and Hongming Cai (Shanghai Jiao Tong University, China)
- Tracking Academic Topic Evolution from the Perspective of Author Interest Shifts 48
Wensi Jiang (School of Business, Australia), Yu Zhang (School of Business, Australia), Min Wang (University of Canberra, Australia), Huadong Mo (School of Systems & Computing, Australia), Omar Hussain (School of Business, Australia), Daoyi Dong (University of Technology Sydney, Australia), and Wenjie Zhang (School of Computer Science and Engineering, Australia)
- Beyond Matching: An LLM-Based Diagnose of SDG Misalignment in University Curriculum 57
Zheru Dong (University of New South Wales, Australia), Wensi Jiang (University of New South Wales, Australia), Lili Dai (University of New South Wales, Australia), Omar Hussain (University of New South Wales, Australia), and Yu Zhang (University of New South Wales, Australia)

Track 3

- From Scenario to Case Model: Generating CMMN Models from Natural Language with Large Language Models 65
Kheira Cherad (Ecole de Technologie Supérieure, Canada), Imen Benzarti (Ecole de Technologie Supérieure, Canada), Abderrahmane Leshob (Université du Québec A Montreal, Canada), and Hafedh Mili (Université du Québec A Montreal, Canada)
- LLM-Based Multi-Agent System for Simulating and Analyzing Marketing and Consumer Behavior 72
Man-Lin Chu (Clark University, USA), Lucian Terhorst (Clark University, USA), Kadin Reed (Clark University, USA), Tom Ni (Clark University, USA), Weiwei Chen (Clark University, USA), and Rongyu Lin (Quinnipiac University, USA)
- Internet of Things – Based Novel Approach to Integrate with Smart Irrigation System 80
Syed Sohail Ahmed (Qassim University, Saudi Arabia) and Omar Al-Amro (Qassim University, Saudi Arabia)
- A Blockchain-Based Framework for Evaluating User Identity Trustworthiness in Real Estate 86
Mohanad A. Almalki (University of Technology Sydney, Australia), Abdullah J. Abualhamayl (University of Technology Sydney, Australia), Abdulmajeed A. Alyoubi (University of Technology Sydney, Australia), Yasir D. Alyoubi (University of Technology Sydney, Australia), Firas Al-Doghman (University of Technology Sydney, Australia), and Farookh Khadeer Hussain (University of Technology Sydney, Australia)

Simulation Model Validation: The State-of-the-Art and Suggestions	91
<i>Songtao Sun (Shanghai Institute of Aerospace Systems Engineering, China), Penglin Liao (South China University of Technology, China), Xiaobing Huang (South China University of Technology, China), and Fei Liu (South China University of Technology, China)</i>	

Track 4

Aydi: An AI-Powered App to Teach Saudi Sign Language	96
<i>Sumayah Alwadei (Najran University, Saudi Arabia), Albatool AL-Sama (Najran University, Saudi Arabia), Fatimah Alkhunjuf (AlGhad College for Applied Medical Sciences, Saudi Arabia), Awsaf Alharthi (Najran University, Saudi Arabia), Shahad Madkhli (Najran University, Saudi Arabia), and Muzun Al Kulayb (Najran University, Saudi Arabia)</i>	
Exploratory Data Analysis and Computer Vision Approach for Traffic Accidents in Saudi Arabia	102
<i>Fatma Masmoudi (Arab Open University, Saudi Arabia), Norah AL-Qahtani (Prince Sattam Bin Abdulaziz University, Saudi Arabia), Latifah AL-Tamimi (Prince Sattam Bin Abdulaziz University, Saudi Arabia), Munirah AL-Fehaid (Prince Sattam Bin Abdulaziz University, Saudi Arabia), Ghoud AL-Dosari (Prince Sattam Bin Abdulaziz University, Saudi Arabia), and Mai AL-Dosari (Prince Sattam Bin Abdulaziz University, Saudi Arabia)</i>	
A Practical Machine Learning Framework for Enhanced Cyber Threat Detection in Digital Supply Chains: Simulation and Applied Evaluation	109
<i>Rasha Aljaafreh (University of Technology Sydney, Australia), Farookh Hussain (University of Technology Sydney, Australia), and Firas Al-Doghman (University of Technology Sydney, Australia)</i>	
AI-Driven Business Intelligence for E-Commerce in Traditional Industries: A Case Study of Romania's Wine Sector	114
<i>Liviu-Andrei Enache (University of Roehampton, United Kingdom), José A. Paredes (University of Roehampton, United Kingdom), and Arturo Araujo (University of Roehampton, United Kingdom)</i>	

Track 5

A new Secure Imaging Continuum Computing System for Diagnosis of Diseases in Healthcare Organizations	120
<i>Abdullah Baihan (King Saud University, Saudi Arabia)</i>	
Blockchain Framework for Shared Real Estate Ownership Certification Using Fractional NFTs	126
<i>Abdullah Jameel Abualhamayl (King Abdulaziz University), Mohanad A. Almalki (University of Technology Sydney, Australia), Firas Al-Doghman (University of Technology Sydney, Australia), Abdulmajeed Alyoubi (University of Technology Sydney, Australia), and Farookh Khadeer Hussain (University of Technology Sydney, Australia)</i>	
The Impact of Demand-Side and Supply-Side Policies on the Diffusion of Electric Vehicles: An Evolutionary Game Model Based on Q-Learning and a Two-Layer Small-World Network ..	132
<i>Zhuangzhuang Li (Shanghai International Studies University, China) and Hua Luo (Shanghai International Studies University, China)</i>	

Explainable Execution of Socio-Technical Processes	138
<i>Ahmad Alelaimat (Skyline Higher Education Australia, Australia), Fairouz Hussein (The Hashemite University, Jordan), and Ali Aljaafreh (Mutah University, Jordan)</i>	

Track 6

Enhancing BERT-LA: Robustness Analysis with Augmented Data for English-Arabic Sentiment Classification	144
<i>Wael Jefry (University of Technology Sydney, Australia), Farookh Hussain (University of Technology Sydney, Australia), and Firas Al-Doghman (University of Technology Sydney, Australia)</i>	
Lightweight Computing Framework for Ship CAD Models in Large-Scale Collaborative Design Scenarios	153
<i>Zeming Chen (Shanghai Jiao Tong University, China), Ziqi Liu (Shanghai Jiao Tong University, China), Jianwei Song (CSSC Seago System Technology Co., Ltd, China), Kun Jiang (CSSC Seago System Technology Co., Ltd, China), Pan Hu (Shanghai Jiao Tong University, China), and Hongming Cai (Shanghai Jiao Tong University, China)</i>	
A Blockchain-Based Reputation Borrowing Model to Address the Cold Start Problem for New Users in Real Estate	159
<i>Abdulmajeed A Alyoubi (University of Technology Sydney, Australia), Abdullah J Abualhamayl (King Abdulaziz University), Mohanad A Almalki (University of Technology Sydney, Australia), Yasir D Alyoubi (University of Technology Sydney, Australia), Firas Al-Doghman (University of Technology Sydney, Australia), and Farookh Khadeer Hussain (University of Technology Sydney, Australia)</i>	
JRTRL: A Joint Recommendation Method for Indexes and Materialized Views Based on Transfer Reinforcement Learning	165
<i>Jiangqing Wang (South-Central Minzu University, China; Hubei Provincial Engineering Research Center of Agricultural Blockchain and Intelligent Management, China), Enqing Wu (South-Central Minzu University, China; Hubei Provincial Engineering Research Center of Agricultural Blockchain and Intelligent Management, China), Chong Sun (South-Central Minzu University, China; Hubei Provincial Engineering Research Center for Intelligent Management of Manufacturing Enterprise, China), Fan Yin (South-Central Minzu University, China; Hubei Provincial Engineering Research Center of Agricultural Blockchain and Intelligent Management, China), Ruiyu Chen (South-Central Minzu University, China; Hubei Provincial Engineering Research Center of Agricultural Blockchain and Intelligent Management, China), and Hao Hu (South-Central Minzu University, China; Hubei Provincial Engineering Research Center of Agricultural Blockchain and Intelligent Management, China)</i>	

Track 7

IoT Cybersecurity Risk Perception and Response Strategies Among Tech Startups in Saudi Arabia: A Data-Driven Study	171
<i>Safar Albaqami (University of Sussex, U.K.), Maziar Nekovee (University of Sussex, U.K.), and Imran Khan (University of Sussex, U.K.)</i>	

A User-Centered System for Reliable Cross-Border Trade Fraud Detection	177
<i>Zheng Xu (Fudan University, China) and Yinsheng Li (Fudan University, China)</i>	
Digital Twins for Historic Mosque: A Digital Transformation Strategy for Heritage Preservation	183
<i>MOHAMMED Fahad Alghafis (Qassim University, Saudi Arabia) and Sulaiman Ahmed Altami (Qassim University, Saudi Arabia)</i>	
MOCHA:Memory-Optimized Learned Index Based on Chameleon	189
<i>Chong Sun (South-Central Minzu University, China; Hubei Provincial Engineering Research Center for Intelligent Management of Manufacturing Enterprise, China), Ruiyu Chen (South-Central Minzu University, China; Hubei Provincial Engineering Research Center of Agricultural Blockchain and Intelligent Management, China), Meng Xia (South-Central Minzu University, China; Hubei Provincial Engineering Research Center for Intelligent Management of Manufacturing Enterprise, China), Jin Xie (South-Central Minzu University, China; Hubei Provincial Engineering Research Center for Intelligent Management of Manufacturing Enterprise, China), Enqing Wu (South-Central Minzu University, China; Hubei Provincial Engineering Research Center of Agricultural Blockchain and Intelligent Management, China), and Ziheng Han (South-Central Minzu University, China; Hubei Provincial Engineering Research Center of Agricultural Blockchain and Intelligent Management, China)</i>	

Track 8

Security-by-Design in DevSecOps: Evaluating Docker Hardening Against a Real-World Vulnerability	195
<i>Mohammed Busaleh (Saudi Electronic University, KSA) and Niddal H. IMAM (Saudi Electronic University, KSA)</i>	
LoRA-Enhanced LLM Fine-Tuning with Legal Dataset Generation for Multi-Component Financial Extraction: Zero-Shot vs Few-Shot Evaluation Framework for Gulf States HR Benefits Calculation	202
<i>Nasser Aldosari (University of Technology Sydney) and Farookh Hussain (University of Technology Sydney)</i>	
Predicting Cart Abandonment Using Machine Learning	211
<i>Ahmed E. Mansour Atwa (Mustaqbal University, Saudi Arabia)</i>	
Generating Test Cases with Large Language Model: Frameworks and Challenges	217
<i>Mahnaz Reza Hosseini (Flinders University, Australia), Naeem Khalid Janjua (Flinders University, Australia), Ahmad Mohsin (Edith Cowan University, Australia), and Saeed Ur Rahman (Flinders University, Australia)</i>	

Track 9

Blockchain Technologies and Their Applications in E-Business Ecosystems	223
<i>Tamara Abdulmunim Abduljabbar (University of Southern Queensland, Australia)</i>	

Digital Twin-Enabled Condition Monitoring System for Excavator Bucket: A Case Study	231
<i>Adil Hammadi (Curtin University, Australia), Zeeshan Ahmad (Digital Processing Systems, Kuwait), and Janshaid Ashraf (Digital Processing Systems, Kuwait)</i>	
Decentralized Supply Chain Management: A Blockchain Framework for Transparency and Traceability	235
<i>Ahmed Abdallah Abaker (Imam Muhammad ibn Saud University, Saudi Arabia)</i>	
Artificial Intelligence for Tourism Analytics: Predicting Travel Intentions from YouTube and Influencer Dynamics: Case Study of Riyadh	242
<i>Saeed M Alshahrani (Shaqra University, Saudi Arabia)</i>	

Track 10

The Role of AI-Driven MIS in Enhancing Strategic Management and Operational Efficiency in the Healthcare Industry	248
<i>Bedour Almudaiheem (Saudi Electronic University, Saudi Arabia) and Nada Alshamrani (Saudi Electronic University, Saudi Arabia)</i>	
Real-Time Child Detection Using YOLO Architectures for Enhanced Safety Applications	256
<i>Aljwharah Alsamaani (Mohammad Ibn Saud Islamic University (IMSIU), Saudi Arabia), Riyad Almakki (Imam Mohammad Ibn Saud Islamic University (IMSIU), Saudi Arabia), and Waeal J Obidallah (Imam Mohammad Ibn Saud Islamic University (IMSIU), Saudi Arabia)</i>	
Opportunistic Networking as a Solution for Efficient Data Dissemination in Short-Duration Events: A Conference Case Study	261
<i>Mohamad Alrfaay (Mustaqbal University, Saudi Arabia) and Aref Kurdali (Mustaqbal University, Saudi Arabia)</i>	

Track 11

Automated Opportunity Recommendation Through Decision Tree-Based Pattern Recognition and Rule-Driven Inference	266
<i>Naif N. Alotaibi (University of Technology Sydney, Australia; Taif University, Saudi Arabia), Madhushi Bandara (University of Technology Sydney, Australia), Morteza Saberi (University of Technology Sydney, Australia), and Kai Wu (Harbin University of Commerce, China; University of Technology Sydney, Australia)</i>	
Advancing Prediabetes Care with Personalised Conversational Agents	274
<i>Abdullah Bin Sawad (King Abdulaziz University, Saudi Arabia), Mohammed Althubayani (University of Technology Sydney, Australia), Sultan A Alharbi (University of Technology Sydney, Australia), Abdulrhman Alorini (University of Technology Sydney, Australia), Wael Jefry (King Abdulaziz University, Saudi Arabia), Naif N. Alotaibi (Taif University, Saudi Arabia), Bhuva Narayan (University of Technology Sydney, Australia), Shanshan Lin (University of Technology Sydney, Australia), Mukesh Prasad (University of Technology Sydney, Australia), and A. Baki Kocaballi (University of Technology Sydney, Australia)</i>	

Deriving Software Services and Goals they Achieve from Business Process Models	282
<i>Redouane Blal (University of Quebec at Montreal, Canada), Leshob Abderrahmane (University of Quebec at Montreal, Canada), Hafedh Mili (University of Quebec at Montreal, Canada), Omar K. Hussain (University of New South Wales, Australia), and Pierre Hadaya (University of Quebec at Montreal, Canada)</i>	

Track 12

Evolutionary Algorithm Behavior to Optimize the IoT Scheduling Problem	288
<i>Muhammad Abid Jamil (Mustaqbal University, Saudi Arabia)</i>	
Cyber Hygiene Awareness and Practices among Saudi Micro and Small Enterprises	292
<i>Adel Ibrahim M Alluhayb (Flinders University, Australia), Saeed Ur Rehman (Flinders University, Australia), and Naeem Janjua (Flinders University, Australia)</i>	
Impact of Centrelink Recipients in Loan Eligibility Prediction using ML Model	298
<i>Md Kamruzzaman (University of New south Wales, Australia), Ripon Kumar Chakraborty (University of New south Wales, Australia), Pankaj Sharma (University of New south Wales, Australia), Hamed Aboutorab (University of New south Wales, Australia), and Mohammad Nuruzzaman (Ausloans Finance Group Limited, Australia)</i>	

Author Index	305
---------------------------	------------