2023 International Conference on Computer and Applications (ICCA 2023)

Cairo, Egypt 28-30 November 2023



IEEE Catalog Number: CFP23L64-POD

ISBN: 979-8-3503-0326-1

Copyright © 2023 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:
 CFP23L64-POD

 ISBN (Print-On-Demand):
 979-8-3503-0326-1

 ISBN (Online):
 979-8-3503-0325-4

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





Table of Contents

Preventing Fraud in E-tickets Validation Using The 2FA Approach Lolwa Hassan Alnuaimi (University of Liverpool John Moores, Ministry of Education, Qatar); Jihad Mohamad AlJa'am (University of Liverpool John Moores)	1-5
Eye Tracking Based Automatic Summarization of Lecture Slides Stylianos Vazaios (University of Patras, Greece), Andreas Mallas (University of Patras, Greece), Michalis Xenos (University of Patras, Greece)	6-12
SES: Smart Education System Wadha Rashed Alyammahi (UAEU, United Arab Emirates); Saed Alrabaee (United Arab Emirates University, United Arab Emirates) Emirates)	13-16
A Hybrid LSTM and Probabilistic Model for Modelling Repeat Purchase Behavior Engy Samir El-Shaer (The British University in Egypt, Egypt); Gerard McKee (BUE, Egypt); Abeer Hamdy (The British University in Egypt, Egypt)	17-22
Routing Using Genetic Algorithm in Network on Chips with 3D Mesh Topology Maamar Bougherara (Algeria) and Rafik Amara (Algeria)	23-27
Four Points that Provide a Solution in Railway Line Detection and Tracking <u>Enock Tafadzwa Chekure</u> (Nelson Mandela University, South Africa)	28-38
Real-time Tablet Inspection using Computer Vision for Blister Packing Machines Enda Fallon (Athlone Institute of Technology, Ireland); Anish Kadamathikuttiyil Karthikeyan Pillai, Ashley Ellis and Helkier Henrique Rossato (Technological University of the Shannon, Ireland)	39-44
An Architectural Design for the Use of Artificial Intelligence and Biometrics to Harden Campus Environments to Mitigate MassShooting Incidents Kingsley C Nwosu and Isaac O Osunmakinde (Norfolk State University, USA)	45-51
Data and Model Centric Approaches for Card Fraud Detection Sara Farag (The British University in Egypt, Egypt); Nahla Barakat (The British University in Egypt (BUE), Egypt)	52-57
Enhanced Semantic-based Chaotic System for Cyber-grooming Classification and Harassment Detection Nadine Farag (The British University in Egypt), Samy Ghnoneimy (The British University in Egypt), Omar H. Karam (The British University in Egypt)	58-67
Real-Time Agricultural Monitoring with Agrobot: A Raspberry Pi and YOLO Based Solution <u>Ahmed Jafar Osman Ahmed</u> (Saudi Arabia)	68-72
Cross-Language Code Clone Detection Using Abstract Syntax Tree and Graph Neural Network Zeina Badwey Swilam, ZS (The British University in Egypt & BUE, Egypt); Abeer Hamdy (The British University in Egypt, Egypt); Andreas Pester (BUE, Egypt)	73-77
Adaptive Learning and Virtual Reality based Conceptual Framework for Dental Training Meriam Sherif Kamel, (The British University in Egypt & BUE, Egypt); Nahla Barakat (The British University in Egypt (BUE), Egypt); Abeer Hamdy (The British University in Egypt, Egypt)	78-83

Hybrid of DCT and PCA for image size compressions Heba Jabbar Hassan (Ministry of Higher Education and Scientific Research, Iraq); Mousa Wali (College of Technical Electrical Engineering, Iraq); Mohamed Shujaa (Iraq)	84-91
Design of Approximate Full Adders for Error Resilient Applications Deepthi Amuru and Andleeb Zahra (International Institute of Information Technology, Hyderabad, India); Varnika Karakuram (G. NarayanammaInstitute of Technology & Science, India); Zia Abbas (International Institute of Information Technology, Hyderabad, India)	92-97
Tiny Machine Learning for Underwater Image Enhancement: Pruning and Quantization Approach Ayah Abo EL Rejal (Egypt); Andreas Pester (Egypt); Khaled Nagaty (Egypt)	98-103
Activation Function Conundrums in the Modern Machine Learning Paradigm Jamshaid Iqbal Janjua (Al-Khawarizimi Institute of Computer Science & University of Engineering & Technology, Lahore, Pakistan); Sidra Zulfiqar,S (Virtual University, Pakistan); Tahir Abbas Khan (School of Computer Sciences, National College of Business Administration & Economics (NCBAE), Pakistan)	104-111
Bringing Computer Science Education to Schools in Qatar: Challenges of the implementation. <u>Saleh M. Alhazbi</u> (Qatar University, Qatar)	112-115
From Models to Microservices: Easily Operationalizing Machine Learning models <u>Deven Pancha</u> l, Isilay Baran, Dan Musgrove and David Lu (AT&T, USA)	116-120
Fuzzy FCA-based Elderly Activity Recognition Abir Ghannem (University of Sousse, Higher Institute of Computer Science and Communication Techniques, H. Sousse, France); Emily Francis (West Virginia University, USA); Hajer Nabli (MIRACL Laboratory, Tunisia); Layth Sliman (EFREI- Paris, France); Raoudha Ben Djemaa (University of Sousse, Tunisia)	121-126
Network for Large-Scale Protein Tertiary Structures Mena Nagy A. Khalaf (Assiut University, Egypt); Taysir H Soliman (Asyut University, Egypt); Sara Salah Mohamed (New Valley University, Egypt)	127-132
An Optimized Plant Disease Detection Convolutional Neural Network for Future Hardware Implementation Laila H Hammam (The British University in Egypt, Egypt); Hani A. Ghali (British University in Egypt (BUE), Egypt); Gamal A. Ebrahim (Ain ShamsUniversity, Faculty of Engineering, Egypt); Hany A. Bastawrous (The British University in Egypt, Egypt)	133-137
Semi-supervised Classification through Data and Label Graph Fusion Fadi Dornaika and Abdullah Baradaaji (University of the Basque Country, Spain); Jinan Charafeddine (Engineering School Léonard de Vinci -ESILV, France)	138-143
Construction of Animal Protection Science Education System (APSES) Based on Unity3D Wanyi Li, Xiao-Kun Wu and Keqing Deng (South China University of Technology, China)	144-149
Tiny Machine Learning (TinyML) Based Self Diagnostic Kit for Respiratory Diseases Samson O. Ooko (Adventist University of Africa, Kenya) and Jimmy Nsenga (University of Rwanda Kigali, Rwanda)	150-155
An Evaluation of Machine Learning Techniques for Crop Detection from Garden Images Samson O. Ooko (Adventist University of Africa, Kenya), Grace Kwagalakwe (Uganda), Lossan Bonde (Kenya)	156-161
Predicting Potential Customers in Direct Marketing Using Uplift Modelling and Advanced Machine Learning Nuwinda Kodikara and Golnaz Shahtahmassebi (Nottingham Trent UniversityUnited Kingdom)	162-167
An Improved Intelligent Cognitive Radio Spectrum Sensing System using Concept Bottleneck and Deep Learning Models Mohamed Mahmoud Diab, Zaki Nossair and Hesham Badr (Helwan University, Egypt)	168-172

Detecting Non-Injured and Injured Humans in Thermal Imaging using YOLOv8 Mau Luen Tham (UTAR, Malaysia); Cham Ting Hong and Ban-Hoe Kwan (Universiti Tunku Abdul Rahman, Malaysia)	173-177
Development of 3-Channel 12-Lead ECG Monitoring Device with Telemedicine Integration using AD8232 <u>Ibrahim M. Saeed</u> , Musab A. Eltaema, Ghieth A. S. Eldie, Hassan T. Mohamed, Hiba O. Ahmed and Musab E. Salih (Sudan	178-185
University of Scienceand Technology, Sudan)	
Enhancing Facial Recognition in Visual Prostheses using Region of Interest Magnification and Caricaturing Hesham M. Moneer and Reham Elnabawy (German University in Cairo, Egypt); Seif Eldawlatly (Ain Shams University & The American Universityin Cairo, Egypt)	186-190
Vehicle-to-Cloud System New Architecture based on Adaptive AUTOSAR, VSS, and VISS Mona Helmy (Siemens, Egypt); Amr Mohsen (Ain Shams University, Egypt)	191-194
Mitigating Jamming Attacks in IoT RF-Devices through Dynamic Channel Hopping: A Novel Petri-nets Formulation Nourredine Oukas (Algiers & University of Bouira, Algeria); Menouar Boulif (University M'Hamed Bougara of Boumerdes, Algeria); AkliAbbas, Kahina Bahmed and Yasmine Mosteghanemi (University of Bouira, Algeria)	195-200
Privacy-preserving Collaborative Computation: Methods, Challenges and Directions <u>Ikhlas Mastour</u> (University of Sousse & Efrei Paris, France); Layth Sliman (EFREI- Paris, France); Benoit Charroux (EFREI, France); Raoudha BenDjemaa (University of Sousse, Tunisia); Kamel Barkaoui (Cedric Cnam- Paris, France)	201-206
Enhanced Multi-Level Secure Over-the-Air Update System using Adaptive AUTOSAR Mona Helmy (Siemens, Egypt); Mohamed Mahmoud Ibrahem (Ain Shams University, Egypt)	207-210
Application Mapping onto Network on Chip Using Genetic Algorithm and Ant Colony Optimisation Maamar Bougherara (LIM Laboratory Bouira University & Ecole Normale Supérieure Kouba, Algeria); Rafik Amara (ENS, Algeria)	211-216
Architectures, Opportunities, and Challenges in 6G <u>Krishna D Jadhav</u> (USA)	217-220
Proposed Agricultural Internet of Things (AloT) Based Intelligent System of Disease Forecaster for Agri-Domain Jamshaid Iqbal Janjua (Al-Khawarizimi Institute of Computer Science & University of Engineering & Technology, Lahore, Pakistan); Tahir AbbasKhan (School of Computer Sciences, National College of Business Administration & Economics (NCBAE), Pakistan)	221-226
Design and Implementation of Digital Twin V2X System of Broken Vehicle Mona Helmy (Siemens, Egypt); Youssef Essam, Sara Khaled, Omar Khaled and Omar Moataz (Ain Shams University, Egypt)	227-231
A Dual-Critic Deep Deterministic Policy Gradient Approach for Task Offloading in Edge-Fog-Cloud Environment Moshira Abd elnaby Ebrahim (Ain Shams University, Egypt); Gamal A. Ebrahim (Ain Shams University, Faculty of Engineering, Egypt); Hoda Korashy (Egypt)	232-237
The Features of Students Paying and Not Paying Attention in Online Classes Omar Mohamed KamalEldin Fahmy Hafez (British University in Egypt & BUE, Egypt); Ann Nosseir and Gerard McKee (BUE, Egypt); Samir AbouEl-Seoud (The British University in Egypt (BUE), Egypt)	238-244
Smart City Based on Geospatial Information: Concept and Standardization Challenges <u>Eunbi Ko</u> (Telecommunications Technology Association, Korea (South)); GukSik Jeong (TTA & Telecommunications	245-249

Smart City Service Analysis Based on Geospatial Information Technology Life Cycle Eunbi Ko (Telecommunications Technology Association, Korea (South)); <u>GukSik Jeong</u> (TTA & Telecommunications Technology Association, Korea (South)); Kyoung Cheol Koo (Telecommunication Technology Association, Korea (South))	250-254
Scalable Semi-Supervised Learning through Combined Anchor-based Graph and Flexible Manifold Embedding Fadi Dornaika (University of the Basque Country, Spain); Jihad M. AlJa'am (Liverpool J. Mores University, United Kingdom (Great Britain)); Alireza Bosaghzadeh (Shahid Rajaee Teacher Training University, Iran); Zoulfikar Ibrahim and Nagore Barrena (University of the Basque Country, Spain)	255-260
Social Challenges Resulting from the Implementation of Technical Solutions in Smart Cities <u>Aleksandra Kuzior, Katarz</u> yna Postrzednik-Lotko and <u>Jacek Pradela</u> (Silesian University of Technology, Poland)	261-265
Reducing a 3-SAT Instance to a Set of 2-SAT Instances Using the Idea of Set Covering Problem <u>Sardar Anisul Haque</u> (Qatar); Ali M. Jaoua (Qatar); Jihad Mohamad AlJa'am (Qatar); Hafeez Rahman (Qatar)	266-268
Unlocking the Potential of Naïve Bayes for Network Intrusion Detection: A RandomForest-Driven Feature Selection Strategy Rayane Moustapha ElRaba'a, Soha Rawas and Ali El-Zaart (Beirut Arab University, Lebanon)	269-275
The Influence of ChatGPT on Student Learning and Academic Performance Shehab eldeen Ayman (British University in Egypt, Egypt); Samir Abou El-Seoud (The British University in Egypt (BUE), Egypt); Khaled AhmedNagaty (The British University in Egypt & Ain Shams University, Egypt); Omar Karam (The British University in Egypt, Egypt)	276-280
Dynamic Image Representations for Crowd Anomaly Detection using Generative Adversarial Networks Samar Mahmoud (Modern Science and Arts University, Egypt); Yasmine Arafa (University of Greenwich, United Kingdom (Great Britain)); MahaAbdelmohsen (Modern Science and Arts University, Egypt)	281-286
Simulated Annealing for Optimal Path Selection and Scheduling in Energy Routing for Smart grids Assala Nacef (Ferhat Abbas, Algeria); Lemia Louail (Université de Lorraine & CRAN, France); Djamila Mechta and Lina Benchikh (Ferhat Abbas, Algeria); Saad Harous (University of Sharjah, United Arab Emirates)	287-291
Unsupervised Anomaly Detection for Throughput Enhancement in Mobile Networks <u>Mohamed Adel ElBahaa</u> y, Tamer Arafa and Nashwa Abdelbaki (Nile University, Egypt)	292-297
Complementary Model Fusion for Enhanced Social Popularity Prediction <u>Abdullah Almutair</u> i and Danda B. Rawat (Howard University, USA)	298-304
Novel Improved Fuzzy C-means Clustering for MR Image Brain Tissue Segmentation to Detect Alzheimer's Disease <u>Esraa H. Al</u> i (Al-Nahrain University, Iraq); Sawsan Sadek (Lebanese University, Lebanon)	305-310
Solving Energy Routing problems in Energy Internet using Genetic Algorithm Lina Benchikh (Algeria), Lemia Louail (France), and Assala Nacef (Algeria)	311-316
Instashoppers Users' Concerns in UAE: Trust and Security Issues Obsa Sandaba and Mousa Al-kfairy (Zayed University, United Arab Emirates)	317-321
A Novel Energy-Efficient Hierarchical Routing Protocol (EEHRP) for IoT Networks Using K-Means Machine Learning Akli Abbas (University of Bouira, Algeria); Nourredine Oukas (Algiers & University of Bouira, Algeria); Samia Haboussi (University of Bouira, Algeria); Mourad Amad (Bouira University & Laboratory LAMOS, Algeria)	322-327

Evaluation of Network Performance Based on Structured Geometric Topologies <u>Haotian Rao</u> (United Kingdom); João Paulo Ponciano (United Kingdom); Muhammad Ali Imran (United Kingdom)	328-333
Eye Tracking System Using Convolutional Neural Network Shatha Iskandar; Zahraa Jaara, Mohamad Abou Ali, Fatima Sbeity, Abdallah Kasem and Lara Hamawy (Lebanon)	334-339
Automatic Question Generation Using Natural Language Processing and Transformers <u>Reyam Magdy Elshiny</u> (The British University in Egypt, Egypt); Abeer Hamdy (The British University in Egypt)	340-345
Comparison of Transformer-based Architectures for Product Categorization <u>Cherine Mohamed</u> (British University in Egypt, Egypt); Abeer Hamdy (The British University in Egypt, Egypt)	346-350
Coverage and Cell Capacity Optimization in Private LTE network based on Position and Expected Channel Knowledge Ali Kalakech (Lebanese International University, Lebanon); Mohammad Bakir (MindIT, Lebanon); Riad Youssef (Midware Data Systems, Lebanon)	351-356
Development of α Free Fall Drone for Firefighting Applications <u>Abdel-Razzak Abdallah Merheb</u> (International University of Beirut & Lebanese International University, Lebanon); Yahya Bazzaz, Ward Trad andAhmad Haddad (Lebanese International University, Lebanon)	357-362
Revisiting Analog Flight Simulators: Simulation and Implementation of an Analog Simulator for Quadcopters Abdel-Razzak Abdallah Merheb (International University of Beirut & Lebanese International University, Lebanon); Michel Issa, Hamza Assaadand Ahmad Haddad (Lebanese International University, Lebanon)	363-368
Towards Evaluating Image Recommendations in Digital News and Media Ecosystem George Raptis (University of Patras & Human Opsis, Greece); Vasilis Theodorou (Human Opsis, United Kingdom (Great Britain)); Christina Katsini(Human Opsis, Greece)	369-374
Vehicle-to-grid technology in AUTOSAR for Electric Vehicles <u>Mona Helmy</u> and <u>Kerolos Khali</u> l (Siemens, Egypt); Omar Mohamed, <u>Breksam Amr</u> , <u>Aly Mohamed</u> , Amr Amin, Ammar Yasser, Tasneem Essmatand Youssef Hussien (Ain Shams University, Egypt)	375-380
Enhancing Hate Speech Detection in Social Media Using IndoBERT Model: A Study of Sentiment Analysis during the 2024 IndonesiaPresidential Election Ramadhan Ihsani Yulfa, Benediktus Hengki Setiawan, Gerry Gilbert Lourensius and Kartika Purwandari (Bina Nusantara University, Indonesia)	381-380
Implementation of Al Model for Sentiment Analysis of Pharmaceutical Products <u>Kartika Purwandari</u> , Ajeng Wulandari and Noviyanti Tri Maretta Sagala (Bina Nusantara University, Indonesia); Vincent Vincent (Bina NusantaraUnniversity, Indonesia); Sharlene Regina (Bina Nusantara University, Indonesia)	387-392
Revolutionizing Indonesian Farming Application through Knowledge-Sharing and Collaboration Christian Chandra Kusuma, Galang Nurbudi Utomo, Jessica Hidayat, Nathalia Chandra, Putu Agus Parimartha and Kartika Purwandari (BinaNusantara University, Indonesia)	393-398
Deepfakes, Misinformation, and Disinformation in the Era of Frontier Al, Generative Al, and Large Al Models Mohamed R. Shoaib, Zefan Wang, Mr, Milad Taleby Ahvanooey and Jun Zhao (Nanyang Technological University, Singapore)	399-405
How Big Can It Get? A comparative analysis of LLMs in architecture and scaling	406-410
Ramez Yousri Adli and Soha Safwat (Egyptian Chinese University, Egypt)	

Quantum Multi-Agent Reinforcement Learning as an Emerging Al Technology: A Survey and Future Directions Wenhan Yu and Jun Zhao (Nanyang Technological University, Singapore)	417-423
Exploring the Effectiveness of Haptic Machine for Children with Learning Difficulties Ahmad Hamad Al-Rumaihi (Liverpool John Moores University in Qatar, Qatar), Jihad Mohamad ALJA'AM, Keyle Lachiny (Liverpool John Moores University in Qatar, Qatar)	424-431
Jammo-VRobot: A Cost-Effective Solution for Social Skills Training Programme for Children with High-	
Functioning Autism Maha Abdelmohsen (Modern Science and Arts University, Egypt); Yasmine Arafa (University of Greenwich, United Kingdom (Great Britain));Samar Mahmoud (Modern Science and Arts University, Egypt)	432-437
ML Based Apple Leaf Disease Detection Elio Aoun (Aoun, Lebanon); Mohamad Abou Ali (Lebanese International University, Lebanon); Mustapha Hamad (Notre Dame University-Louaize, Lebanon); Abdallah Kassem (Notre Dame University, Lebanon)	438-445
A Survey on the Applications of Frontier Al, Foundation Models, and Large Language Models to Intelligent Transportation Systems Mohamed R. Shoaib (Nanyang Technological University, Singapore); Heba Emara (Menoufia University, Egypt); Jun Zhao (Nanyang Technological University, Singapore)	446-452
Transforming Ideas into Code: A Novel Approach to Design-to Development Workflow <u>George Raptis</u> (University of Patras & Human Opsis, Greece); Christina Katsini (Human Opsis, Greece)	453-458
Fractal Dimension of Ismail's Fourth Entropy with Fractal Applications to Algorithms, Haptics, and Transportation <u>Ismail A Mageed</u> (University of Bradford & University of Bradford, United Kingdom, United Kingdom (Great Britain))	459-464
Uniqueness of The Time-Dependent Controller's Designed Parameter (TDCDP) of Fokker Planck Kolmogorov(FPK) Probability Density Function(PDF) with Applications of Lambert W Function to Number Theory, Quantum Computing and Bitcoin Protocols Ismail A Mageed (University of Bradford & University of Bradford, United Kingdom, United Kingdom (Great Britain))	465-470
A Unified Information Data Length (IDL) Theoretic Approach to Information- Theoretic Pathway Model Queueing Theory (QT) withRényi entropic applications to Fuzzy Logic <u>Ismail A Mageed</u> (University of Bradford & University of Bradford, United Kingdom, United Kingdom (Great Britain))	471-476
The stable M/G/1 queue's Non-Extensive Maximum Entropy Formalism, and Extensive Maximum Entropy Consistency Axioms withStable Queue applications to 6G networks and Multimedia Applications <u>Ismail A Mageed</u> (University of Bradford & University of Bradford, United Kingdom, United Kingdom (Great Britain))	477-482
Fractal Dimension Theory of Ismail's Second Entropy with Potential Fractal Applications to ChatGPT, Distributed Ledger Technologies(DLTs) and Image Processing(IP) <u>Ismail A Mageed</u> (University of Bradford & University of Bradford, United Kingdom, United Kingdom (Great Britain))	483-488
A Proposed Model for Enhancing Product Recommendation Based on Word Embedding Omar Attia (Arab Academy for Science, Technology, and Maritime Transport & Informatique Education, Egypt); Ahmed Dahroug (Arab Academyfor Science and Technology and Maritime Transport, Egypt)	489-494
Classification of Authentication Approaches to Stop the Next Breaking: Challenges, Benefits, Drawbacks, Awareness, and Recommendations Mohammad Qbea'h, Jameela Mohammed Alkaabi, Shamma Mohammed Almansouri, Almaha Alneyadi and Mouza Ali	495-499

Securing ISO 15118 Communication in Electric Vehicles using Real-Time Monitoring and Vehicle-to-Grid Sniffer Mona Helmy (Siemens, Egypt); Mohamed Taher, Marwan Abdelhakem ELmasry and Alaa Medhat (Ain Shams University, Egypt); Moatsm Eldeeb(Ain Shams University & Siemens EDA, Egypt); Aya Tallah Tarek (Ain Shams University & Siemens, Egypt); Mustafa Amer Abd Al-Tawab (Ain Shams University & Siemens DISW, Egypt); Moaz Ayman Mokhtar (Ain Shams University, Egypt); Muhammad Ahmad Thabet (Faculty of Engineering, Ain Shams University, Egypt)