

2025 International Telecommunications Conference (ITC-Egypt 2025)

**Cairo, Egypt
28-31 July 2025**

Pages 1-482



**IEEE Catalog Number: CFP25AM4-POD
ISBN: 978-1-6654-5801-6**

**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:	CFP25AM4-POD
ISBN (Print-On-Demand):	978-1-6654-5801-6
ISBN (Online):	978-1-6654-5800-9

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

TABLE OF CONTENTS

A Camouflage Fire Sprinkler Antenna for Indoor Sub-6 GHz 5G and WiFi Applications.....	1
<i>Ahmed Alieldin, Abdelrahman M. El-Akhdar, Angie R. Eldamak, A. M. Elelimy Abounemra, Mohammad Darwish</i>	
A Multi-Mode Hexagonal MIMO Antenna Array for Wi-Fi Applications	5
<i>Ahmed Alieldin, Assem H. Elfeky, Walid M. Saad, Ahmed Khairy</i>	
Enhancing Stock Price Forecasting with a Multi-Agent System and Time Series Analysis.....	10
<i>Abdallah Mashaly, Ahmed Hereiz, Mohammed Ayman, Khaled Elhady, Omar Allam, Sarah M. Ayyad</i>	
Multiple Finite Intelligent Reflecting Surfaces for Indoor Wireless Communication	18
<i>Nasreldeen Abdulmuein, Eman M. Eldesouki, Angie R. Eldamak, Ahmed M. Attiya, Hadia Elhennawyl</i>	
Sentiment Analysis on Twitter Dataset Using Apache Spark and H2O Machine Learning Framework: A Comparative Study	23
<i>Katia Gabriel, Moustafa El Mahdy, Mahmoud Ghandour, Moheb Hany, Sally Elghamrawy</i>	
Age-Aware Irregular Repetition Slotted Aloha for Direct-To-Satellite Internet of Things.....	30
<i>Dengke Wang, Ahmed Elzanaty</i>	
Tomato Plant Disease Classification Using Attention Fusion of ConvNeXtTiny with Color LBP Features	35
<i>Yasmin M. Alsakar, Nehal A. Sakr, Mohammed Elmogy</i>	
Star Image Extraction Algorithm for Star Trackers Disturbed by Stray Light Based on Improved YOLO.....	43
<i>Xifang Zhu, Feng Wu, Chen Wang, Weilin Ji</i>	
Unveiling the Threat: Quantum Factorization Techniques and Their Impact on RSA Cryptosystems.....	48
<i>Hanan Khaled, Maha A. Metawei, Sherif M. Saif, Mohamed Taher, Salwa M. Nassar</i>	
A 50 Gbit/S Inter-Satellite Optical Wireless Communication System Based on PAM-4 Signal: Performance Evaluation	56
<i>Mehtab Singh, Amit Grover, Somia A. Abd El-Mottaleb</i>	
Blockchain-Enabled Real-Time Risk and Interdependency Analysis for the Internet-Ofcritical Infrastructures.....	62
<i>Hosny Abbas, Bassem Abd-El-Atty, Hamada Esmail</i>	
Hermite Gaussian-Mode Division Multiplexing Enabled Underwater Optical Wireless Communication System: Performance Evaluation for Jerlov Waters.....	70
<i>Mehtab Singh, Amit Grover, Somia A. Abd El-Mottaleb</i>	
Techniques of the Intelligent Electronic Devices and Network Monitoring System in Smart Grid	76
<i>Mustafa Ali Mustafa, Hussien Eldosouki, Ahmed Elshenawy, Mostafa S. Hamad</i>	
Palmprint Recognition Using Siamese Networks with ResNet-18.....	83
<i>Tarek Awad Elbendary, Abeer Khalil, Mahmoud M. Saafan, Hossam Mostafa</i>	
Rationalization of Energy Consumption in the Smart Cities Using AI Algorithms.....	90
<i>Mohamed A. Elgharably, Naglaa R. Hassan, Mohamed S. Ismail</i>	

Leveraging Deep Learning for Psoriasis Detection: An Innovative Approach to Skin Disease Diagnosis	97
<i>Farah Walid Abdelsalam, Rawan Walid Mustafa, Hanan Tarek, Marwa M. Solayman, Mohamed N. Saad</i>	
Leveraging IoT and Climate Insights for Soil Property Prediction in Precision Agriculture	103
<i>Fatma M. Talaat, Ali E. Takieldeem, Warda M. Shaban</i>	
Dynamic Cybersecurity Defense: A Real-Time Approach with Zeek and Metasploit.....	109
<i>Ali E. Takieldeem, Ali Khaled Elbably, Ahmed Anwer Elmogy, Zeyad Hesham Elsaid Aboala, Doniaa Mohamed Abdelhady, Ahmed Azzam</i>	
“Face Detection & Recognition System for Enhancing Cybersecurity”	115
<i>Ali E. Takieldeem, Ahmed Alaa, Ahmed Khaled, Mohamed Mekky, Ibrahim Tarek, Ahmed Wael, Doaa M. Darwish, S H Haggag, Nada Samir Elsayed</i>	
A Developed Design of Low-Cost Insulin Pump for Automated Insulin Delivery (Aid) System	123
<i>Kamel A. Elshorbagy, Yasser Abuouf, Moustafa Z. Sharaf</i>	
Privacy-Preserving Federated Learning in IoT Networks Using Homomorphic Encryption and Differential Privacy	131
<i>Fawad Khan, Syed Yaseen Shah, Syed Aziz Shah, Jawad Ahmad, Shahzaib Tahir, Adnan Zahid</i>	
Gaining Sharing Knowledge Based Algorithm for Fixed Charge Transportation Problem.....	137
<i>Mahmoud Zaki Ghazi Moussa, Naglaa Ragaa Hassan, Heba Sayed Roshdy</i>	
Sentiscan: Leveraging Multilingual NLP, RL, and XAI for Robust Governmental Intelligence Using Sentiment Analysis with Arabic Dialect Focus	144
<i>Haytham Tarek Mohamed Fetooh, Eman Ali Metwally</i>	
Reconfigurable Tunable Bandpass Filter with Ultra Wide Frequency Range for Sub-6 GHz 5G Applications.....	152
<i>Mahmoud Hatem Negm, Ahmed Alieldin, Ahmed M. Elelimy Abounemra</i>	
Comparative Analysis of XGBoost, Fuzzy Logic, and Hybrid Models for Acetone, Ethanol, and Methanol Gas Concentration Prediction.....	156
<i>Rana M. Abdelghani, Iman Morsi, Abd-Elhady B. Kashyout, Walid El-Shafie, Taha El-Sayed</i>	
Radar-Based People Presence Estimation Using Digital Twin Simulation Framework	164
<i>V. Sebastian Ratto, Ahmed N. Sayed, Arien Sligar, Omar M. Ramahi, George Shaker</i>	
Adversarial Generation of Modbus TCP Packets Using WGANs for ICS Security Testing	167
<i>Mohamed Tawfik, Wael Badawy</i>	
AI-Powered Cybersecurity: A Technical Review of Intrusion Detection Models, Tools, and Metrics.....	173
<i>Wael Badawy</i>	
High Gain Frequency-Selective Surface Millimeter Magneto-Electric Dipole Using Printed-Ridge Gap Waveguide for 5G Wireless Applications	179
<i>Hossam A. Helaly, Mohamed Mamdouh M. Ali, Abdel Razik Sebak</i>	
Unlocking LLM Security: Automated Penetration Testing and Source Code Review Based on Vulnerability Analysis and NLP	184
<i>Ali E. Takieldeem, Noor Hossam, Osama Elkassaby, Moad Awad, Mahmoud Gomaa, Adham Ahmed, Ahmed Saad, S H Haggag, Nada Samir Elsayed</i>	

Robust UAV Classification in Noisy Environments: A Digital Twin-Driven CNN Approach with ROC Analysis	192
<i>Taher S. Ahmed, Ahmed N. Sayed, Ahmed Youssef, Magdy Elbahnasawy, George Shaker</i>	
Ethical Hacking Tool for Cybersecurity Testing and Exploration Device II	197
<i>Ali E. Takieldeeen, Doniya Mohamed Abdelhady, Ibrahim Hosny Nasef, Mariam Mahmoud Ayoub, Doaa M. Darwish, Reem Reda Saad</i>	
Web Attack Intrusion Detection System Using Machine Learning Approaches for Cybersecurity.....	205
<i>Ali E. Takieldeeen, Aya El-Sayed El-Metwaly, Rahma Rezk Elzahdany, Rahma Fawzy Zidan, Areej Ahmed Lotfy, Doniya Mohamed Abdelhady</i>	
An Enhanced Pseudorandom Number Generator Based on 5D-Memrestive Hyperchaotic Map	213
<i>Ahmed M. Mohy El Den, Karim H. Moussa, Amira Zaki, Mohamed Essam Khedr</i>	
Dual Active Bridge-Based Emergency Mobile EV Charging System: Control Strategies and Performance Analysis.....	219
<i>Kareem Nada, Mohammed Alhasheem, Ibrahim Abdelsalam</i>	
Optimizing Student Performance Prediction Through Feature Selection and Machine Learning Models.....	226
<i>El-Sayed M. El-Kenawy, Amal H. Alharbi, Amel Ali Alhussan, Marwa M. Eid, Mark Sobhi, Doaa Sami Khafaga</i>	
Machine Learning-Based Prediction of Smart Grid Stability for Enhanced Energy Management	232
<i>El-Sayed M. El-Kenawy, Amal H. Alharbi, Amel Ali Alhussan, Marwa M. Eid, Mark Sobhi, Doaa Sami Khafaga</i>	
Optimizing Electric Vehicle Workplace Charging Patterns Using Feature Selection and Machine Learning Models.....	238
<i>Mohamed Elkanzi, El-Sayed M. El-Kenawy, Amel Ali Alhussan, Ali E. Takieldeeen, Khaled Sh. Gaber, Marwa M. Eid</i>	
Cybersecurity Threat Detection and Feature Selection Using Waterwheel Plant Optimization	244
<i>Abdelhameed Ibrahim, El-Sayed M. El-Kenawy, Amel Ali Alhussan, Ali E. Takieldeeen, Khaled Sh. Gaber, Marwa M. Eid</i>	
Comparative Analysis of Fuel Types on Fuel Efficiency and CO_2 Emissions in Light-Duty Vehicles with Machine Learning Prediction Models	253
<i>Abdelhameed Ibrahim, El-Sayed M. El-Kenawy, Ali E. Takieldeeen, Amel Ali Alhussan, Khaled Sh. Gaber, Marwa M. Eid</i>	
Emotion Recognition from EEG Signals Using Vision Transformer and CNN	259
<i>Merna Mansour, Lamees N. Mahmoud, Ibrahim Sadek, Nancy M. Salem</i>	
Optimizing Video Streaming Over 6G Networks: Codec Adaptation, Quality Metrics, and AI-Driven Topologies	265
<i>Hegazi Ibrahim, Mohamed Elmowafy</i>	
Astro-VOS: Tracking Supernova Evolution Using Video Object Segmentation.....	273
<i>Jing-Wen Chen, Mohamed S. Shehata, Alex S. Hill</i>	
Neural Network Modeling for the Meca500 Industrial Robot: Practical Implementation, Validation, and Testing.....	279
<i>Tarek Khaled, Ahmed M. Hashala, Ibrahim M. A. Ibrahim, Mostafa Korashy, Ouassima Akhrif, Ilian Bonev</i>	

Performance Evaluation of Advanced Encryption System Implementation for Data Security Applications.....	285
<i>Mahmoud Mousa, Ebrahim M. Ebrahim, Eslam Amer Mohamed, Mohammed Abdelnaser Awad, Mustafa A. Anwar, Momen T. Abdelghany, Mahmoud E. Mahmoud, Mustafa M. Sallam</i>	
Design and Validation of Hybrid Couplers for Satellite Feed Networks in Ka and QV Bands	291
<i>Mahmoud Gadelrab, Ahmed Elsaadany, Shoukry I. Shams, Mahmoud Elsaadany, Ghyslain Gagnon</i>	
AI-Powered Vulnerability Detection in Code Using BERT-Based LLM with Transparency Measures.....	297
<i>Ali E. Takieldean, Merna Gamal, Abdelrahman Ahmed Salah, Mohamed Walid, Abdelrahman Mohamed Mahmoud, Khaled Ahmed, Saleh Tamer Abdallah, Nada Samir Elsayed, Aida A. Nasr</i>	
Wideband Reconfigurable Intelligent Surface for Programmable Beam Steering in 6G Wireless Networks	305
<i>Mohammad Ali Abdelraheem, Abdel Razik Sebak</i>	
Explainable MobileNetV2 Model for Different BI-RADS Breast Cancer Diagnosis Using Mammogram Scans.....	309
<i>Israa Abdelsabour, Ahmed Elgarayhi, Mohammed Sallah, Mohammed Elmogy</i>	
Performance of Multi-User Hybrid Beamforming Technique for Millimeter Wave Massive MIMO Systems.....	317
<i>Mohamed G. Tolba, Mohammad M. Abdellatif</i>	
Machine Learning-Based Mitigation of NLOS GNSS Signal Interference in Threat Environments	323
<i>Mohamed A. Ezzelarab, Eman Abdelhalim, Ashraf Abosekeen</i>	
User Priority-Aware Multiple Access and Dynamic Channel Reservation in Space-Based IoT	329
<i>Lihu Chen, Chengtao Wei, Qingquan Liu, Songting Li</i>	
Enhanced Egyptian Arabic Speech Emotion Recognition.....	337
<i>Yosef Moustafa, Lamees N. Mahmoud</i>	
Coaxial-To-Waveguide Adapter Using Machine Learning Approach	342
<i>Mahmoud Gadelrab, Ahmed Osama, Shoukry I. Shams, Mahmoud Elsaadany, Ghyslain Gagnon</i>	
Partially-Connected Hybrid Precoders for Massive MIMO with Finite-Resolution Phase Shifters	346
<i>Ahmed Osama, Mahmoud Elsaadany, Shoukry I. Shams, Ghyslain Gagnon</i>	
AI Enhanced SegNet for Spacecraft Image Segmentation in Communication Oriented and Structural Monitoring Applications	352
<i>Mayada Khairy, Alaa Osman, Ahmed Farag</i>	
Artificial Neural Network Control for Stabilizing an Inverted Pendulum Using Bond Graph Modeling	358
<i>Mohamed W. A. Ramadan, Amir R. Ali</i>	
Hybrid RF-MLP Model for Enhanced Fault Detection in Power Transmission Systems Using Data Resampling Techniques.....	364
<i>Amir R. Ali, Hossam Kamal</i>	
Bit-Activated Spatial Index Modulation for Low to Moderate SNR and Large MIMO Regimes.....	370
<i>Ahmed Kabil, Ahmed Bendary, Ahmed F. Darwesh, Hisham Dahshan</i>	

Feature Fusion for Brain Tumor Classification Using Channel-Wise Attention and BLS.....	376
<i>Shaimaa E. Nassar, Ibrahim Yasser, Hanan M. Amer, Mohamed A. Mohamed</i>	
AI at the Core of Smart Grids: Leveraging LLMs for Resilience and Efficiency	382
<i>Adam Aberbach, Jason Bluhm, Mohamed Baza, Mahmoud M. Badr, Amar Rasheed</i>	
Thermal and SAR-Based Limits for Human Skin Exposed to Terahertz Radiation.....	388
<i>Samar Elmaadawy, Josep M. Jornet</i>	
Personalized Federated Deep Reinforcement Learning System for Diabetes Management with Llm Integration	394
<i>Amima Shifa, Sherif Abdelfattah, Mahmoud M. Badr, Mohamed Baza, Amar Rasheed</i>	
A Hybrid IoT Fall Detection System Using Wearable Sensors and WiFi Channel State Information.....	400
<i>Sherif Abdelfattah, Fawwaz Ali, Sai Gowtham Kalleti, Mohamed Baza, Mahmoud M. Badr, Amar Rasheed</i>	
Comparative Synthesis of Linear and Nonlinear Model Predictive Controllers for Satellite Attitude Control System	406
<i>Khaled Mohsen, Mohamed Ibrahim, Ahmed M. Kamel, Mahmoud Ashry</i>	
Modular Flyback Converter for Green Hydrogen Production with PV/PEM Electrolyzer System	412
<i>Amr A. Hassan, Ibrahim Abdelsalam, Mostafa I. Marei</i>	
Impact of Node Dropout on Connectivity in One-Dimensional Wireless Ad Hoc Networks.....	419
<i>Nada A. Abdelsalam, Sherif M. Abuelenin, Heba Nashaat, Saly Hassaneen</i>	
Comparative Analysis of MMIC Conventional SPDT Switch and Quarter Wave Traveling Wave Switch Using GaAs Technology for X Band.....	425
<i>Swati Sharma, Shikha Swaroop Sharma, Patrick Ettore Longhi, Sergio Colangeli, Ernesto Limiti, Walter Ciccognani</i>	
IRAM5G : Intelligent Resource Allocation in 5G Networks for Enhanced Mobile Computing.....	431
<i>Moustafa M. Ahmed, Abdelgwad Elashry, Alyaa A. Hamza</i>	
Optimized NARX-Based Noise Mitigation for Enhanced Navigation Accuracy of Low-Cost IMUs in GNSS-Denied Environments.....	436
<i>Alaa Fekry, Eslam M. Mustafa, Ahmed M. Kamel, Yehia Elhalwagy, Ashraf Abosekeen</i>	
Real-Time Tracking Antenna System for Moving Targets	442
<i>Adham Saad, Aya Sherif Nassef, Mahmoud Mohamed Elshahed, Mohamed Ismail Ahmed</i>	
Non-Invasive Tissue Damage Detection Using Micro Interdigitated Electrodes and Arduino-Based Impedance Spectroscopy	447
<i>Mariam Abdelbaki, Rofida Esmail, Hanin Eltabakh, Omnia Salman, Mennatallah Habiba, Joumana Mourad, Sameh Sherif</i>	
Model-Free MRAC Using Sensor-Based Reference Estimation and Real-Time Lyapunov Control	453
<i>Amir R. Ali, Ayman M. Tarek</i>	
Swin Transformer for Bone Metastasis Classification: A Comparative Study with Transfer Learning Models.....	459
<i>Aly Maher Abdelfattah, Mohamed Abd Elaziz, Youssef Mohamed Elmeligy, Ammar Ramadan Abozaid, Abdelrahman Osheba, Khaled Samy Samah, Youssef Maaod, Ahmed Abou-El-Ela</i>	
Route Optimization for School Buses Using Real-Time GPS and Geospatial Data.....	465
<i>Rana Adel, Amira Hatem, Sameh Sherif</i>	

Enhanced Gender Classification in Panoramic Dental X-Rays Based on Deep Learning and Hybrid Swarm Algorithm	471
<i>Aly Maher Abdelfattah, Mohamed Abd Elaziz, Youssef Mohamed Elmeligy, Ammar Ramadan Abozaid, Nada Abd Elkarim</i>	
FPGA Implementation of E1 and E6 Galileo Signals Using XSG	477
<i>M. El Hawary</i>	
Pattern Recognition of sEMG Signals by CNN-BiLSTM Algorithm for Bio-Robotics Applications.....	483
<i>Anas Hassan Abdelmoneam, Mostafa Abdelaziz, Nourhan Zayed</i>	
Spatial Calibration of IMU/Radar Sensors Using Single Target and Differential IMU Measurements	491
<i>Divyam Sharma, Mohamed Atia, Sreeraman Rajan</i>	
Transformer-Based Anomaly Detection in Satellite IoT: A Hybrid Approach with Rotary Embedding and Kernelized Attention.....	497
<i>Youssef Maaod, Ahmed Yasser Lotfy Belaih, Nabila Ahmed Ali, Jomana Farag Soliman Mohamed, Farah Mohamed Mahmoud Ahmed, Aly Maher Abdelfattah, Mohamad Fouad, Mohamed Abd Elaziz</i>	
Integration of AI-Driven Electronic Warfare Radio Monitoring Systems with Antenna Array Direction Finding for Advanced Signal Classification and Localization.....	503
<i>Mohamed A. Aboelazm</i>	
Multi-Tag Ambient Backscatter for IoT Networks.....	509
<i>Suneel Yadav, Radhika Gour, Devendra S. Gurjar</i>	
Anti (UAVs and Drones) System Using YOLOv9	515
<i>Ashraf Samy, Mamdouh Gouda, Ahmed Samir Zaki, Nada Raafat Ali</i>	
60-GHz TPGW-Based Device Body Interaction with Comprehensive Safety Profile Investigation	523
<i>Haitham Hamada, Mohamed Mamdouh M. Ali, Shoukry I. Shams, A. M. M. A. Allam</i>	
Broadband Printed Ridge Gap Waveguide Antenna Augmented with Metamaterial Lens.....	528
<i>Syed M. Sifat, Haitham Hamada, Mohamed Mamdouh M. Ali</i>	
Artificial Intelligence Technique for Solving Weapon Target Assignment.....	532
<i>Mohamed S. Ismail, Naglaa Ragaa Hassan, Ali Wagdy Mohamed</i>	
Discrete Indoor Three-Dimensional Visible Light Communication Localization System Based on Machine Learning Algorithms.....	539
<i>Alzahraa M. Ghonim, Hossam M. H. Shalaby, Ashraf A. M. Khalaf, Wessam M. Salama</i>	
Imitation Learning for Obstacle Avoidance Using End-To-End CNN-Based Sensor Fusion.....	546
<i>Lamiaa H. Zain, Hossam H. Ammar, Raafat E. Shalaby</i>	
Adaptive Embedded Machine Learning on IoT Devices: A Review	553
<i>Omar Abozaid, Bassant Selim, Brigitte Jaumard</i>	
Analytical Approach for Orbital Angular Momentum Beam Generation Using Reconfigurable Holographic Surfaces	561
<i>Mohamed Mamdouh M. Ali, Larbi Talbi, Haitham Hamada, Siwar Louati, Khelifa Hettak</i>	
Advancing Toxicology Through Machine Learning and Deep Learning-Based Toxicity Prediction.....	567
<i>Sameh Zarif, Alaa Taha El Maria, Mahmoud Ahmed Shawky, Shuja Ansari, Ahmed Gamal Abdellatif Ibrahim, Islam M. Ibrahim, Marian Wagdy</i>	

Hybrid Deep Learning Framework for White Blood Cell Classification Using Attention-Based Feature Fusion	574
<i>Samah A. Gamel, Mervat El-Seddek</i>	
A Simplified CNN Model for UAVs Images Classification by Deep Learning Algorithm	580
<i>Ahmed M Abdelmonem, Mohamed Maher Ata, Abdelhamied A. Ateya, Abd Elhamid Shalaan, Rania Ahmed Elsayed</i>	
Learning to Calibrate Using a BiLSTM Framework for Full MEMS IMU Error Compensation	585
<i>Hany Mamdouh Mohamed, Mohammed A. H. Abozied, Ahmed M. Kamel, Yehia Z. Elhalwagy</i>	
Robust Cross-Species Multi-Object Tracking: A Unified Pipeline for Zebrafish and Chickens	591
<i>Haidy Aboud, Hanan Tarek, Ayman Atia</i>	
Design of Directive Wideband Microstrip Antenna.....	597
<i>Rahma Reda, Mariam Hossam, Hassan A. Ragheb</i>	
Palm-Print Recognition Enhancement Using a Deep Learning -SVM Hybrid Approach	603
<i>Tarek Awad Elbendary, Abeer Khalil, Mahmoud M. Saafan, Hossam Mostafa, Ahmed Khairy</i>	
Revolutionizing VANET Security: Decentralized Authentication with Edge Aggregation and Blockchain Logging	611
<i>Ahmed S. Zaghloul, Mohamed Abdelazim Mohamed, Hanan M Amer, Mahmoud A. Shawky</i>	
Annotation-Free Object Segmentation Using Zero-Shot Detection and SAM for Fruit Classification.....	619
<i>Pierre Nabil, Khaled Mohamed, Steven Hany Saad Kamel, Ayman Atia</i>	
Misalignment Detection and Correction for Dynamic Wireless Charging of Electric Vehicles	625
<i>Hasnain Mahdi, Abdelrahman Abdeltwab, Mohamed S. Hassan, Ahmed Osman, Ahmed M. Benaya</i>	
60 Ghz Los Indoor Measurements and Simulations	631
<i>Huthaifa Obeidat, Muhammad Malik, Mahmud Abd Elwanis, Issa Elfergani, Raed A Abd-Alhameed, N. O. Parchin, Ahmed S. I. Amar, Ahmed Khairy Mahmoud</i>	
Sum-Rate Maximization for Noma-Aided Wirelesspowered Mobile Networks	636
<i>Noor Breesam, Walid Al-Hussaibi, Rana H. A. Zubo, Falah Ali, Israa Al-Musawi, Raed A Abd-Alhameed, N. O. Parchin, Ahmed S. I. Amar, Ahmed Khairy Mahmoud</i>	
A Wearable Belt-Based Gyroscope System for Real-Time Spinal Posture Monitoring and Feedback	642
<i>Mariam Zaki, Sohaila Abuhamad, Ahmed Elshafee, Olfat Diab, Ahmed Samir</i>	
Wheels in Space: Modeling and Comparative Control Analysis of a Reaction Wheel Pendulum for Space Attitude Stability	649
<i>Sherif I. Abdelmaksoud, Mohammed H. Ahmed Al-Mola, Sherif Hassan Mohamed</i>	
Low-Profile MIMO Antenna System for High-Frequency 6G/THz Wireless Networks.....	655
<i>N. O. Parchin, M. Boumalkha, A. S. I. Amar, A. K. Mahmoud, R. A. Abd-Alhameed</i>	
Multi-Band THz Antenna Array for High-Capacity 6G Communications	659
<i>H. J. Basherlou, N. O. Parchin, A. S. I. Amar, A. K. Mahmoud, R. A. Abd-Alhameed</i>	
Broadband Terahertz Phased Array Utilizing Compact Dipole Resonators for 6G Systems.....	663
<i>H. J. Basherlou, M. Odiamenhi, N. O. Parchin, C. H. See, M. Boumalkha, A. S. I. Amar, A. K. Mahmoud, R. A. Abd-Alhameed</i>	

Metamaterial/Metasurface-Inspired Monopole Antenna Design for High-Gain Ultra-Wideband Communications.....	667
<i>H. J. Basherlou, M. Odiamenhi, N. O. Parchin, C. H. See, A. S. I. Amar, A. K. Mahmoud, R. A. Abd-Alhameed</i>	
UWB Antenna Design with WLAN-Band Suppression for MIMO Systems.....	671
<i>N. O. Parchin, A. S. I. Amar, R. A. Abd-Alhameed, A. K. Mahmoud</i>	
Toward 6G: Energy-Efficient AI-Based Fog RAN Architecture with Lower Latency.....	675
<i>Eman A. Anowr, Mohamed I. Ismail, Mona Nashaat, Mohamed A. Mohamed, Mostafa M. Fouda, Heba M. Abdel-Atty</i>	
Covertrack-Dqn: Enhancing Penetration Testing Efficiency with Deep Q-Networks for Trace Covering.....	681
<i>Muhammed Karam Fathi, Khaled Metwally, Mohamed Sobh, Ayman Bahaa Eldin</i>	
A Low-Profile MIMO Antenna with Closely-Spaced Resonators for 5 THz Wireless Applications.....	687
<i>A. S. I. Amar, M. Boumalkha, H. J. Basherlou, N. O. Parchin, A. K. Mahmoud</i>	
Power Amplifier Design Using Filtering Matching Network for Sub-6-GHz 5G/6G Applications.....	691
<i>Mohamed Boumalkha, Raed A Abd-Alhameed, Naser Ojaroudi Parchin, Ahmed Khairy Mahmoud, Ahmed Gamal Abdellatif Ibrahim, Mohamed Abd El-Latif, Ahmed S. I. Amar, Ahmed Ibrahim Salem</i>	
Compact Dual-Wideband THz MIMO Antenna Array for 6G Wireless Connectivity.....	697
<i>H. J. Basherlou, N. O. Parchin, A. S. I. Amar, A. K. Mahmoud</i>	
A Novel Real-Time Military Training Simulator Based on Improving War Scenario Using FSM Model.....	701
<i>Noha Hussen, Rahma Mohamed, Islam Hany, Youssef Hossam</i>	
AF-Intellect: Intelligent Classification System for Atrial Fibrillation.....	709
<i>Ayman Ibrahim, Ashraf Sameh, Doaa Gamal</i>	
Advancing Real-Time Military Aircraft Detection: A Comprehensive Comparative Benchmark of Object Detection Frameworks.....	715
<i>Mohamed Rady, Nada Abd El Karim, Youssef Maaod, Mohamed Abd Elaziz, Aly Maher Abdelfattah, Youssef Mohamed Elmeligy, Ammar Ramadan Abozaid, Mohamed Elsayed</i>	
Sustainable Water Management: Predicting Water Quality Using H2O Framework and AI Techniques.....	721
<i>Shaymaa Mahmoud, Sama Gouda, Mona Ibrahim, Sally Elghamrawy</i>	
Real-Time Human Activity Recognition Using the H2O AutoML Framework and Imbalance Handling.....	728
<i>Eya Gammoudi, Charbel El Fakhry, Farida Madkour, Selim Aly, Sally Elghamrawy</i>	
Agricultural Monitoring and Automation Enabler Feedback-Based Desktop Remotely Controlled System.....	734
<i>Noha Hussen, Omar Moustafa, Mohamed Badway, Salah Othman</i>	
Real-Time Detection of Surface Cracks in Wood Using Deep Learning-Based Image Analysis for Quality Control.....	740
<i>Amir R. Ali, Mohamed W. A. Ramadan, Marwan Helal</i>	

Enhanced Radar Signal Processor for Small Radar Cross Section Target Detection.....	746
<i>Mohamed G. Kishk, Amgad A. Salama, Mohamed Mabrouk, Basem E. Elnaghi, Sherif F. Nafea</i>	
Sustainable Technology: Refining Web Resources Using Green Computing Analysis to Enhance Climate Action.....	752
<i>Rania Elsayed Ibrahim, Tshiamo Motshegwa, Mai Ramadan Ibraheem</i>	
Dual-Band High Gain Circular Microstrip Array Antenna for Wireless Applications	760
<i>Hassan A. Ragheb, Mariam Hossam</i>	
High-Efficiency Power Amplifier Design with a Broadband Performance.....	766
<i>Mahmoud F. Ghareeb, Ahmed S. I. Amar, Mohamed Boumalkha, Eyad S. Oda, Sherif F. Nafea</i>	
A Proportional Navigation Based Reinforcement Learning Approach: Efficiency Enhancements and Practical Applications.....	772
<i>Ashraf Ehab Khalaf, Ali Maher, Mohammed Abozied Hassan, Ahmed M. Kamel</i>	
Multi-Modal Depression Monitoring System.....	778
<i>Merna Youssef, Omar Abdelazeez, Kareem Hassan, Merna Bibars, Lamees N. Mahmoud, Ibrahim Sadek</i>	
Performance Analysis of Polarimetric Through-Wall Micro-Doppler Radar for Human Target Detection	784
<i>Mohamed G. Kishk, Amgad A. Salama, Mohamed Mabrouk, Basem E. Elnaghi, Sherif F. Nafea</i>	
Direct Signal Suppression in Passive Radar Systems Using Beam-Space Processing	790
<i>Amgad A. Salama, Ahmed S. Abdel-Rahman</i>	
Performance Evaluation of Unsupervised Learning for LSFD Weights Prediction in Cell-Free Massive MIMO System.....	795
<i>Moustafa Mohamed, Bassant Abdelhamid</i>	
Next-Gen Microwave Design: Enhancing Emf Shielding for Health and Sustainability	802
<i>Khaled Oqda, Mohamed Ali Metwalliy, Hanaa Salem Marie</i>	
Large Language Models in Intent-Based Networking: A Comprehensive Survey Across the Intent Lifecycle.....	810
<i>Marwa Tageldien, Bassant Selim, Lokman Sboui</i>	
A Hybrid Algorithm for the Synthesis of Distributed Antenna Arrays with Dynamic Range Ratio Control.....	818
<i>Magdy A. Abdelhay, Mazen Youssef, Ghadir Madi</i>	
An Off-Grid Compressive Sensing-Based Approach for Sidelobe Level Suppression and Null Control in Linear Antenna Arrays by Perturbing the Positions of a Minimum Number of Elements	824
<i>Magdy A. Abdelhay, Ghadir Madi, Mazen Youssef</i>	
Non-Uniform Grid for Near-Field ISAC with Prior Information	829
<i>Ahmed A. Tawfik, Sherif M. Abuelenin, Ahmed Elzanaty</i>	
Channel Modeling and Performance Enhancement for Cooperative Optical Inter-Satellite Links	835
<i>Mohamed O. Musa, Mohamed Naguib, Ahmed H. Elghandour, Alaa Eldin Rohiem</i>	
MMIC LNA for ISL Applications Using Forward Combining Topology.....	842
<i>Vanya Sharma, Swati Sharma, Shikha Swaroop Sharma, Patrick E. Longhi, Ernesto Limiti</i>	

System Identification and Modeling of Actuation Dynamics for Fixed-Wing UAVs Using Empirical Servo Data	847
<i>Salah Shaheen, Ehab Safwat, Ahmed E. Elbanna, Ayman H. Abd El-Aziem, Eyad Saeed Oda, Emad Badry</i>	
A Next-Generation Real-Time Optical Data Link for Air-Gapped Environments Using a Novel Firmware-Based Post-Quantum Methodology	853
<i>Zeyad E. Badwi, Mohmed F. Elsamman, Walid S. Mohamed, Moheb M. Kalil, Yahia Z. Elrefaay</i>	
A Lightweight DeepLabv3+ Model for Real-Time Polyp Segmentation in Colonoscopy Images.....	861
<i>Asmaa A. Hekal, Abeer Abdelhamid, Amir Almslmany, Shaimaa E. Nassar</i>	
AI-Powered Mobile Application for Alzheimer's Screening Using Clock Drawing Test.....	867
<i>Safaa M Naeem, Omnia M Kamal, Eman M Sharaf El-Dein, Batool Y Sadeq, Mennatallah A Mohamed, Lamees N. Mahmoud</i>	
Design of UWB Circularly Slot Hexagonal Antenna for Biomedical Fields Application	872
<i>Salamatu A. Ibrahim, Muftah M Abdullahi, Isah M. Danjuma, Raed Abd Alhameed, Karim Mohamed M. Elsayyad, Naser Ojaroudi Parchin, Ahmed S. I. Amar, Ahmed Khairy Mahmoud</i>	
Mitigating EV Load Uncertainty: Optimized Siting and Sizing of PV-Integrated Charging Stations in Distribution Grids.....	878
<i>Mohamed Gamal, Hadeer Ahmed, Abdelrahman Farouk, Mohamed Wagdy, Omar Sherif, Remon Hany, Yosry Ahmed, Youssiff Mohamed, R. A. Swief</i>	
Design of Dual-Polarised Multi-Pixel Patch Antennas for Simultaneous Wireless Information and Power Transfer in IoT Sensor Networks	884
<i>M. Odiamenhi, H. J. Basherlou, C. H. See, K. Goh, H. Yu, N. O. Parchin, A. S. I. Amar, A. K. Mahmoud</i>	
Dual System with Large Language Models for Detecting and Supporting Low Confidence in Young Social Media Users.....	889
<i>Sara Zayan, Omneya Attallah, Heba Ahmed Fayed</i>	
Microsaccade-Based Biometric Authentication: A Secure and Privacy-Preserving Cryptographic Framework.....	897
<i>Shahd Wagdy, Khalid M. Ezzat, Sameh Zarif, Mahmoud A. Shawky</i>	
High-Efficiency Polarization Conversion Metasurface for X-Band Applications.....	906
<i>Kiran Ashfaq, Rana S. Anwar, Abdelhady M., Ahmed S. I. Amar, Ahmed Khairy. Mahmoud, Muhammad M. Tahseen</i>	
Dual-Band Rectenna for Simultaneous Wireless Information and Power Transfer in IoT Nodes.....	909
<i>M. Odiamenhi, H. J. Basherlou, C. H. See, K. Goh, H. Yu, N. O. Parchin, A. S. I. Amar, A. K. Mahmoud</i>	
Slice-Based Resource Allocation for Intermediate UPF.....	914
<i>Yaseen Al Doori, Leo Popokh, Raul Rodriguez, Suku Nair</i>	
Integrating Half Wavelet Attention Blocks in U-Nets for Enhanced Pediatric Dental Image Segmentation.....	922
<i>Rowan Hossam, Noureldin Elmadany, Omneya Attallah</i>	
Spiking Convolutional Architecture for Action Recognition in Temporal-Encoded and Event-Based Imaging.....	928
<i>Karim Gabr, Shady Nagy, Mohammed A.-M. Salem</i>	

Velocity Estimation in IoT and Body Area Networks: A Review	934
<i>Karim H. Moussa, Ahmed H. El-Sakka, Mohamed A. Soliman</i>	
Pushing the Limits of MIMO Beamforming: Innovations, Challenges, and the Path to 6G	941
<i>Mohamed A. Soliman, Karim H. Moussa, Hesham Tolba, Abdel Razik Sebak</i>	
Modeling and Evaluation of UAV Navigation Using IMU-GPS Sensor Fusion	947
<i>Khalid M. Nasr, Sherif Mostafa, Ali Maher, Ahmed Kamel</i>	
Digital Cosine Chaotic Maps Applied in Medical Image Encryption	953
<i>Ayman S. Selmy, Wageda I. El-Sobky, Tamer O. Diab, Mohamed Ahmed Aly Soliman, Wael A. Mohamed, Shady Hossny Elgohary</i>	
Enhancing Water Quality Classification Using Stacking Models and XGBoost Optimization	962
<i>Ahmed M Elsheshetawy, Aboul Ella Hassanien, Nagy R. Darwish</i>	

Author Index