

2026 IEEE 5th International Maghreb Meeting of the Conference on Sciences and Techniques of Automatic Control and Computer Engineering (MI-STA 2026)

**Sebha, Libya
5-7 April 2026**

Pages 1–506

IEEE Catalog Number: CFP26AC0-POD
ISBN: 979-8-3315-8416-0



Copyright © 2026, IEEE

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:	CFP26AC0-POD
ISBN (Print-On-Demand):	979-8-3315-8416-0
ISBN (Online):	979-8-3315-8415-3

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

Breast Tumor Classification Using a Hybrid System Combining a CNN with Genetic Algorithm and K-means for Mammography Images	1
<i>Reima Almajdoub, Eslam Sheta, Muhammad Siddiqui</i>	
Optimal Power Flow of an Offshore Wind Energy System Integrated to the 12-Bus Power System in Benghazi Distribution Network	9
<i>Duaa Elshaibani, Ahmed Tahir</i>	
Predictive Modeling of Enrollment Suspension Risk: A Case Study of the University of Tripoli Using Explainable AI Techniques	14
<i>Suher Elbasha, Yusra Maatug, Issmail Ellabib</i>	
Using Classification Algorithms to Predict and Evaluate the Performance of Kidney Disease	19
<i>Zakaria Suliman Zubi, Bassam Mohamed Alshehomiue</i>	
Design and Performance Enhancement of a SubTerahertz Patch Antenna Using SRR Metamaterials for 6G	25
<i>Khalid Elwrfalli, Ibtihal Fawzi ElShami</i>	
Exploring Machine Learning and Deep Learning Models for Circuit Performance and Parameter Prediction	30
<i>Aya H. El-Sahati, Ghofran Meftah, Kenz A. Bozed</i>	
A Low-Resource Challenge: Comparative Analysis of Hate Speech Detection in Libyan Social Media	37
<i>Asma Agaal, Yahya BenYahmed, Abbas Ahessin</i>	
A Combined Genetic Algorithm–STATCOM Framework for Enhanced Optimal Power Flow and Voltage Stability	45
<i>Ismail Ziane, Farid Benhamida, Riyadh Bouddou, Adel Oubelaid, Abdussalam Ali Ahmed, Monaem Elmnifi</i>	
H-infinity Framework with Nonlinear Validation: A Mixed-Sensitivity Approach to Robust Wheel Slip Regulation Using H-infinity Control for Variable Road Conditions	51
<i>Noureddine Toumi, Ahseen Naser Aldeeb, Ahmed Massoud Al Magtouf</i>	
Security Bug Report Classification: A Comparative Study of Convolutional Neural Networks and Large Language Models	57
<i>Riad Dawood, Samia Abdalhamid, Rabe Abdalkareem</i>	
Overview and Experimental Implementation of DCDC Buck Converter with Voltage and Current Control Loops Using MOGA	63
<i>Asma Alfergani, Salma Elkawafi, Hassan Alfaitouriy, Anas Algargouri, Mohammed Elwerfly Farhat M. Shaltami, Joumanah Saret, Ashraf Khalil</i>	
Quantifying the Impact of Electrical Load Noise on Gas Turbine Dynamic Behavior Using Multidomain Modelica Modeling	70
<i>Montaser A.M Qasem, Abdelbaset Mostafa Ihbal, Ahmed Ibrahim Asiw</i>	
Multi-Stage SAR Framework for Detection, Tracking, and Identity Classification of Humans, Movement and Similar Things	75
<i>Marai Abousetta, Salwa Ibrahim</i>	

Kalman-Enhanced DEMON Processing for Multi-Hydrophone Passive SONAR Detection in Offshore Environments	81
<i>Marai Abousetta, Saaida Elmahdi Alnour</i>	
BER Performance Comparison of 16 - ary PSK, APSK, and DPSK in 2x3 MIMO Systems over AWGN and Fading Channels	87
<i>Hajer F. Dougdoug, Amer R. Zerek</i>	
Potential of Decentralized PV Systems on City Rooftops as a Pathway to a Self-Sufficient Ghurafah: A Case Study	93
<i>Ola A. Frewan, Imad M. sharFeddin, Riyadh A. Balkhayrat</i>	
Deep Learning Approach for Pneumonia Detection in Chest X-Rays with Visual Explanation Technique	99
<i>Abdelkader Alrabai</i>	
Performance of LS and MMSE Channel Estimation for NOMA-OFDM Detection	105
<i>Mohamed Omar Babana, Mohamed Nuri Hussin</i>	
Artificial Intelligence Utilization for PQ Concerns in Power Grid: Cybersecurity, Optimization and Policy Implications	110
<i>Mohamed Khaleel, Ziyodulla Yusupov, Wahab Ali Shah</i>	
Assessing the Impact of the LearnOOP Tool on Enhancing the Understanding of Object-Oriented Programming-An Experimental Study Across Three Semesters	116
<i>Sakeenah Ahmed, Mohammed Albarkoli, Aisha Alfitouri, Khamiss M. S. Ahmed, Mahmoud Alawan</i>	
Megawatt-Scale Filter Design for Off-Grid Fuel Cell Systems	124
<i>Kholid Ben Hamad, Mohamed Salem, Mohamed A Alsharif</i>	
A Late Acceptance Hill Climbing for the Electric Vehicle Routing Problem with Adaptive Penalties	130
<i>Mansour Essgaer, Rabia Lamami, Aisha Abuhajar, Manar Arif, Weiam Saheri, Asma Agaal</i>	
Operational Performance Comparison of Signalized Intersection, Multi-lane Roundabout, and Turbo Roundabout Using Traffic Microsimulation	138
<i>Abubakr A. B. Mohammed, Aeshah Alzayani</i>	
Sizing And Placement of Reactive Power Compensation Devices for Voltage Stability Enhancement in the Southern Region of the Libyan power Grid	145
<i>Omar G. Mrehel, Mohammed Altegazi</i>	
EMI Shielding Metamaterial-Based Absorber for Electric Vehicle Applications	152
<i>Lolo I Ftis, Marai M Abousetta</i>	
A Differentially Fed Dual-Polarized Microstrip Antenna with Wideband and Low Profile for Mm-wave Application	157
<i>Magid Alzidani, Abduladeem Beltayib, Islam Afifi</i>	
Environmental Determinants Influencing Solar PV System Performance: Ambient Air Temperature, Atmospheric, and Extreme Natural Events	163
<i>Salih Abraheem, Mohamed Khaleel, Ziyodulla Yusupov, Omar Ali Zargelin, Yasser F. Nassar</i>	
<i>Hala J. El-Khozondar</i>	
Association Rule Mining and Performance Evaluation of Libyana Mobile Network: Evidence from Six Months of Operational Data	170
<i>Almahdi Alshareef, Salem Alsaid, Mohammed Ahzaz, Ziyad Drhop, Ali Alsharif</i>	

E-Learning Acceptance in a Libyan Private School: A Case Study in Sebha, Libya	178
<i>Ali Y Zaydan, Ibrahim Nnass, Almahdi Alshareef, Mohammed Shantal</i>	
Multiple-Input Multiple-Output Systems Two-Stage Recursive Least Squares Identification Algorithm for Autoregressive Systems	184
<i>Ali Nuri Saad Omar, Abraheem Naji Almuzoughi, Abdulmuez Mohammed Alasheg Nasar Aldian Ambark Shashoa</i>	
Dual Active Bridge Converter Design for Solid-State Transformer–Based Power System Applications	190
<i>Khaled Ghambirlou, Adel Ali Abosnina, Gerry Moschopoulos</i>	
The Role of Energy Storage Technology in EVs: Classification, Evaluation, Optimization, Current Trends and Future Perspective	195
<i>Abdullah Abodwair, Muhammet T. Gunesser, Mohamed Khaleel, Abdurazaq Elbaz</i>	
Beyond Accuracy: A SHAP and LIME-based Explain Ability Framework for Pharmacy Profit Prediction	201
<i>Asma Aqaal, Ali Mohammed, Abbas Ahessin, Roqya Abdelhamed</i>	
Modulation Scheme Recognition Based on CNN Deep Learning Techniques	209
<i>Saleh Abdalnour, Mohamed Elalem</i>	
A Novel Divide-and-Conquer Enhanced A* Algorithm for Efficient and Robust Path Planning	215
<i>Jabril Ramdan, Asma Mustafa Abouethlah, Siham Salih Khalleefah</i>	
Optimizing Brain Tumor Segmentation: Hybrid Architectures and Loss Functions	221
<i>Amaal Abujoylah Awushah, Ahmed Elajeli Rgibi, Hesham H. Amin</i>	
E-MONAI: An Enhanced Hybrid Framework for Accurate Lung Nodule Detection in CT Scans	226
<i>Eljabu Mohamed, Bera Ahmed, Garrab Ali, Saad Elhusain</i>	
Design of Adaptive Neuro-Fuzzy Inference System Power System Stabilizer For a Multi-machine System	231
<i>Abdullah A. Ahlees, T. Hussein Elmenfy</i>	
Experimental Comparison of PI and Model Predictive Control for Level Regulation of a Nonlinear Conical Tank	236
<i>Otman Tawerghi, Youssef Arebi, Mohamed Zayed, Esam Maried</i>	
A Physics-Guided Hybrid LSTM Model for Predicting Poultry House Temperature Dynamics under Libyan Climatic Conditions	243
<i>Mohammed Bouheesah, Tahani Almabruk</i>	
Design and Evaluation of a Hybrid Predictive-Inversion Self-Tuning Regulator for Automotive Speed Control in Comparison With IMC-Based PID	250
<i>Abdunaser Abdusamad, Farag I. k. Mousa</i>	
Comparative Performance of PID with MPC for Optimizing Furnace Control	258
<i>Roua Sediq Alkerdasi, Ahmed F. Zrigani, Ahmed J. Abougarair, Abdulsalam A. Ala-Ktiwi</i>	
Comparative Performance Analysis of PID and FL Control for a Nonlinear Magnetic Levitation System	265
<i>Nagmedeen Eltorky, Ahmed F. Zrigani, Ahmed J. Abougarair, Khaled S. Elsouri</i>	
Adaptive Back-stepping Control for trajectory tracking of a quadrotor UAVs	273
<i>Nuradeen K. Fethalla, Tareq N. Elgargani, Khalid Salem Aleja, Abdulkarim A. Hudoud</i>	

Optimal LQG Controller Design for Self-Balancing Two Wheeled Vehicle Stabilization	279
<i>Saja S. Sherlala, Shada E. Elwefati, Hossam A. Altrmal</i>	
Fine-Tuning a CNN for Object Classification with ROI- Based Kalman Filter Tracking in an Assistive System for the Visually Impaired	287
<i>Reima Almajdoub, Eslam Sheta, Muhammad Siddiqui</i>	
Preserving Cultural Heritage: A Deep Learning Approach for Classifying and Recommending Libyan Traditional Clothing	295
<i>Asma Aga, Mansour Essgaer, Ruqayah Mohamed Albahi, Atiya Alsnousi, Amal Amarrf, Fatima Al Fadhel</i>	
Libyan Restaurants: A New Annotated Corpus for Sentiment Analysis of the Libyan Arabic Dialect	302
<i>Rabia Lamami, Manar Arif, Weiam Saheri, Mansour Essgaer, Asma Aga, Aisha Abuhajar</i>	
Software-Defined Networking with SDN Controller: Implementation, Performance Analysis, and Comparative Study Using Cisco Packet Tracer 8.22	310
<i>Huda Mahmoud Bashir Al-Ghamdi</i>	
Optimizing Kidney CT Image Classification: A Stacking Ensemble Approach with Preprocessing and Fine-Tuned Deep Models	316
<i>Fatima Ahmed ALjaafari, Amna Mohamed Elhawil</i>	
Lightweight Neural Encryption for Real-Time Audio Communication: An Edge-Optimized Approach	324
<i>Nada Salaheddin Gheriyani, Elbahlul Elfgee</i>	
Evaluating the Impact of Deep Learning Techniques for Arabic Handwritten Digits, Characters and Word Recognition	330
<i>Ezuldeen Saeid, Ahmed Lawgali</i>	
Advancing Cancer Surveillance in Libya: Insights from the Largest National Dataset Using Geospatial and Cluster Analysis	336
<i>Rokya Abdelhamed, Mansour Essgaer, Rabia Al Mamlook, Mohamed Matoug, Ayoub AlhaajAli Abubaker Shibani, Khola Iswikan, Asma Aga</i>	
National Cybersecurity Risk Posture in North African Countries: A comparative Study with Libya	344
<i>Iman Ahmeid Mohamed, Mohamed Altaher Ben Naseir</i>	
AUTOPHONEX: An Interpretable Framework for Automatic Articulatory Labelling of Arabic Speech Using Self-Supervised Deep Embeddings	350
<i>Suher Elbasha, Amna Elhawil</i>	
Optimization Latency in IoT Edge Computing Using Generative Digital Twins	356
<i>Ahmed M. Alhassan, Musaddag K. O. Taha, Maha A. K. Al-Shafee, Hussam S. Mohammad, Rashid A. Saeed Mamoon M. Saeed, Rania A Mokhtar, Mohammed S. Elbasheir</i>	
A Robust Machine Learning Framework for Accurate Hepatitis Prediction Using Random Forest	362
<i>Mohammed Najy, Almabruk Sultan, Mohammed Ramadan Mohammed</i>	
Enhancing Indoor Localization Accuracy: A Comparative Study of Decision Tree and Random Forest Algorithms as Successors to KNN-based Approaches	368
<i>Mohammed Aboughalia, Mohamed A. Elalem</i>	
DRL-Driven Integrated Demand Response Model A Dynamic Pricing Strategy for Energy Systems	374
<i>Gaddafi Almannouny, Mohamed Elfiatoure, Salem Alsaid, Hisham AbouGrad</i>	

Cluster Analysis of North Carolina’s County-Level Crime Rates	380
<i>Sebastian Potuondo, Eljilani Hmouda</i>	
Forecasting Stock Prices Using ARIMA, LSTM, and Walk-Forward Validation	389
<i>Camden Vuocolo, Eljilani Hmouda</i>	
XAI Digital Twin Predictive Maintenance in the Automotive Industry: Challenges and Opportunities	395
<i>Hisham AbouGrad, Veeranjanyulu Batthula, Fiza Riaz</i>	
Predictive Maintenance for Industry 4.0: Bearing Fault Detection from Real Vibration Data Using Lightweight Supervised and AutoML-Based Models	401
<i>Taha Muftah Abuali, Abdussalam Ali Ahmed, Yasser Fathi Nassar, Mohamed Mohamed Khaleel Hala El-Khozondar, Abdulgader Alsharif</i>	
Rapid Diagnosis of Foot-and-Mouth Disease in Livestock Using Supervised Machine Learning Algorithms	408
<i>Ebtsam Mahmmoud, Almabruk Sultan</i>	
Advanced Machine Learning for Dyslexia Detection Using Eye Movement: A Systematic Review	414
<i>Almabruk Sultan, Naima Abdel Aziz Abdel Hadi, Zahow Muftah Khamees, Kenz Amhmed Bozed</i>	
A Hybrid Deep-Tabular Framework for Concrete Crack Detection Using UCI Mix Design and CCIC Image Embeddings	420
<i>Ahmed Alwirshiffani, Ramadan Ahmed M. Elghalid, Najm Ibrahim Ayad, Aeshah Alzayani</i>	
Performance Evaluation of DQN Variants in Algorithmic Trading	425
<i>Seddik Khemaissia, Youcef Soufi, Ali Almaktoof</i>	
Neural Warm-Starting for Physics-Enforced Electromagnetic Inversion	431
<i>Nada Djedouani, Seddik Khemaissia, Ali Almaktoof, Youcef Soufi</i>	
Mean Monthly Rainfall Prediction At Ajdabiya Station Using Artificial Neural Network	438
<i>Aeshah Alzayani, Abubakr A. B Mohammed</i>	
Hybrid CNN-BiGRU with Comparative Word Embedding Analysis for Multi-Class Cyberbullying Detection on X	444
<i>Niroz Alwerfally, Kenz A. Bozed</i>	
Hybrid Learning Framework for Analog IC Parameter Prediction	452
<i>Niroz Alwerfally, Hajer A. Altaweil, Kenz A. Bozed</i>	
Per Capita CO ₂ Emissions Forecasts for Libya’s Zero Routine Flaring Target by 2030	458
<i>Retaj Wershfani, Asma Bushaala, Rayan Bribesh, Mohamed Baqar</i>	
Automated Metadata Retrieval from Arabic Book Covers Using Deep Learning-Based Text Recognition Methods	464
<i>Nawal Aljuhaymi, Hasan Alkhadafe, Ibrahim Nasir</i>	
Hybrid Machine Learning Approach to Enhance Cloud Intrusion Detection	471
<i>Fatma Ismail Alwerfali, Youssef Omran Gdura</i>	
The Impact of Internal Factors on Deep Neural Network Learning in Simple Data Tasks	477
<i>Abduladem Aljamel</i>	

Uncovering Linguistic Patterns in Libyan Dialect Abusive Language: An Association Rule Mining Approach Using FP-Growth	485
<i>Mansour Essgaer, Hana Safour, Mona Asharef, Asma Agaal</i>	
Identifying Clinical Priorities in Post-Traumatic Stress Disorder: A Phenotype-Based Network Analysis Approach	493
<i>Fathiyah Aejaal, Asma Agaal, Mohamed Matoug</i>	
Insider Threat Detection and Prevention through Behavioral Profiling and Targeted Training	501
<i>Salah Wannees Elorfy, Fatimah Husayn Amir Aldeeb, Almabruk Sultan</i>	
Minority-Class Internet of Things Anomaly Detection via Deep Learning Models Using CESNET-TimeSeries24 Dataset	507
<i>Llahm Ben Dalla, Ömer Karal, Mansour Essgaer, Yousef Swissi, Mohamed El-Sseid</i>	
A Radon Transform-Based Framework for Target Detection in Low-Visibility Hazy Atmospheres	515
<i>Asem Khmag, Raja Mostafa Ali Salem, Retaj Abd Almajd Alahresh</i>	
A Format-Preserving Encryption Method for Securing Geospatial Vector Map Data	520
<i>Ahmed Abubahia, Adel Rahuma, Hisham AbouGrad, Salem Alsaid, Mohamed Alrayes</i>	
Performance Evaluation of OpenStack in Virtual Network Environments	526
<i>Lojain Saadawi, Salem Omar Sati, Mahmud Mansour</i>	
AI-Based Multi-Sensor Drone System for Detection of Unexploded Ordnance and Portable Weapons	532
<i>Mohammed Abdalla, Mohammed Omer, Rashid A. Saeed, Thuwaybah Mohammad, Ahmed Salaheldin Mamoon M. Saeed, Yassin Eisa, Rania A Mokhtar, Mohammed S. Elbasheir</i>	
Feature Selection for Arabic Sentiment Analysis using Genetic Algorithm and Support Vector Machine	538
<i>Mabrouka Ail Mohammed, Hamouda Chantar</i>	
Explainable Ensemble Learning for Student Dropout Prediction in Conflict-Affected Educational Systems	543
<i>Amna Abas, Mansour Essgaer, Llahm Ben Dalla</i>	
Detecting Audio Deepfakes in the Libyan Dialect: A Stacked Ensemble Approach Using MFCCs and Mel-Spectrogram CNNs	551
<i>Mona Bouaisha, Mohammed Elsheh</i>	
Academic Feedback Module: An Integrated System for Quality Assurance and Student Evaluation at Libyan International University	557
<i>Nahla Nagib Burweiss, Ehab A. Omar Elfallah</i>	
Comprehensive DDoS Detection Framework for Cloud Service Providers	563
<i>Abobaker Elgasaier, Salem Omar Sati, Mahmud Mansour</i>	
Facial Recognition Accuracy and Verification time Comparison Between ArcFace and Facenet Models on DeepFace Framework	569
<i>Essra Sowan, Juma Ibrahim, Ayad Ali Keshlaf</i>	
Design and Implementation of a Secure Hybrid Host-Based Intrusion Detection System (HIDS) Using Signature-Based and Machine Learning Techniques	575
<i>Alhashimi Alhadad, Guzlan Miskeen</i>	

Explainable Prediction of Phishing Susceptibility in Higher Education Using Learning Analytics and Cost-Sensitive Random Forests	582
<i>Abdusamea Omer, Basem Amer, Alhasan Almahroug, Zuher Fheleboom</i>	
Proactive Response and Incident Simulation Model (PRISM) Aligned with MITRE ATT&CK for Cybersecurity Incidents	588
<i>Areej Mohammed Altirban, Azeddien M. Sllame</i>	
Supply Forecasting for a Pharmaceutical Distribution Company Using AutoML Techniques on Historical Sales Data	595
<i>Eliana S. Omoora, Tarek Nagem</i>	
Comparative Evaluation of End-to-End Automated Testing Tools for Web Applications: Cypress vs. Playwright	601
<i>Mabroukah Amarif, Hisham Imhmed, Fatma Awidat, Mansour Ahwidy, Khamiss Ahmed</i>	
Semantic Aware Static Analysis for Ransomware Detection: Preliminary Results from a Lightweight Embedding and Graph Augmented Framework	607
<i>Salah Naas, Azeddien M. Sllame</i>	
Implementation of BFD with Different Routing Protocols in DMVPN Networks	613
<i>Muhammed Khalifa, Faisal Alhwikem, Salem Sati, Mahmud Mansour</i>	
The Dominant Role of AI Reliability and Accessibility in Digital Learning Adoption: Extending TAM in Libyan Universities	619
<i>Khaled Abuhlfaia, Marwa Mohamed, Asmail Muftah</i>	
Ethical Hacking Approaches: Revealing Hidden Networks Via Double Pivoting Techniques	625
<i>Ahmed Altaib, Ibrahim Almerhag, Mahmud Mansour, Najia Ben Saud</i>	
Performance Evaluation of Different VoIP Codecs Under UDP Flooding Attack in SDN	633
<i>Abdulsalam Yahya, Kamal Tawer</i>	
TinyLettuceNet: Custom Convolutional Neural Networks for Edge-Deployable Lettuce Disease Diagnosis in Low-Resource Farms	639
<i>Mohanned Naji Albibas, Musa Faneer</i>	
Improved System for Generating Electronic Digital Signatures Based on Virtual Infrastructure	647
<i>Vyacheslav Gerasimov, Olga Boiprav, Islambek Saymanov, Sana Ahmed Abdaljlil, Amer R. Zerek</i>	
Using Multiple-Feature Selection Methods With Hypared Random Forest and Support Vector Regression Models for Effort Estimation	653
<i>Arwa Ibrahim Elbaba, Abdelsalam M. Maatuk</i>	
Integrating Explainable Artificial Intelligence in Fraud Detection for E-Commerce Transactions	660
<i>Zahow Al-Mmbr, Khawla Abdulsattar, Azah Abdulsalam</i>	
A Reinforcement-Guided Graph Attention Framework for Autonomous Self-Healing in Software-Defined Networks	666
<i>Het Mehta</i>	
A robust Video Stabilization Approach for Direct Estimation of Camera Motion Using Deep Learning	673
<i>Asem Khmag, Olfa Alkadaa</i>	

A Performance Study of Indoor VLC Systems Employing Multi-User MIMO Technology	680
<i>Zeyad Mohamed Elkwash, Suhayl Ali Altayf, Abdullah Ali Alqamoudi, Mohammed Khalid Farhat</i>	
User Identification TVWS Using Machine Learning	686
<i>Farooq Awin</i>	
Analysis and Evaluation of Four-Wave Mixing Effects in Ultra-Dense WDM Optical Fiber Networks	691
<i>Sabrin Henish, Farhat M. Shaltami</i>	
Adaptive Federated Learning Based Resource Management in Mobile Edge Computing for Machine Type Communication in 5G Network	698
<i>Asia E. Ahmed, Esraa Y. Hassan, Rashid A. Saeed, Ruaa S. Mohamed, Yusra Y. Hassan, Mamoon M. Saeed Rania A Mokhtar, Omnia A. Ali, Mohammed S. Elbasheir</i>	
Optimizing Fairness and Energy Efficiency in Small Cell CR-NOMA Downlink for Sustainable Resource Allocation	705
<i>Nahla Nur Elmadina, Rashid A. Saeed, Elmustafa Sayed Ali, Elsadiq Saeid, Mohammed S. Elbasheir</i>	
Monte Carlo Dosimetric Validation of High Energy Photon Beams (6, 10, 15, and 18 MV) Using GATE/Geant4 Simulation	712
<i>Karima M. Elmasri, Ibtehaj Alhothery, Tasneem Gezani</i>	
Wide-Angle Beam Scanning from a Leaky-Wave Antenna Using Second-Mode Ridge Gap Waveguides	720
<i>Abduladeem Beltayib, Allafi Omran, Mohsen Ibrahim Mohamed</i>	
VAE-Based Joint Coding-Modulation and PCA in Digital Semantic Communication	726
<i>Ahmed Farhat, Osama Abusaid</i>	
Particle Swarm-Optimized Hybrid Beamforming for Spectral Efficiency in mmWave MIMO Systems	733
<i>Ilias Ismail, Mohamed Elalem</i>	
Hybrid Deep Learning Feature Extraction and Ensemble Machine Learning for Fracture Detection	739
<i>Masoud Husayn, Abdalkreem Masaod, Awatif Abdulmawlay, Mohamed A. E. Abdalla</i>	
EEG Analysis with Power Spectral Density, Spectral Entropy, and Alpha/Beta Ratio for Brain State Classification	745
<i>Rodina Belkasem Taher, Salma Belal Ali</i>	
Learning-Based Joint mmWave Beam Alignment under Standardized 3GPP TR 38.901 UMi Channels	750
<i>Hend Jannat, Mahmoud Almntasir, Jalal Srar</i>	
Leveraging Hybrid Learning Model for Violent Recognition in Surveillance Videos	755
<i>Hajer A. Altaweil, Kenz A. Bozed</i>	
Design, Implementation, and Performance Evaluation of a Long-Range Quadcopter	761
<i>Hassan Abdallah Aldeeb, Najib Mustafa Asbiqa, Tariq Mahmoud Mleitan</i>	
Performance Evaluation of HEVC Lossy and Lossless Compression in Mechanical Surface Imaging	766
<i>Tarek Esehli, Bushra Aoun, Shada Al-Naas, Aisha Khalfall</i>	
Performance Analysis of BER and Q-Factor in WDM Optical Fiber and Free Space Optical Communication Systems Using OptiSystem	772
<i>Mohamed A Alkelsh, Samah Salih Alaswed, Esraa Fozi Algazawi, Ola A Bordon</i>	

AI-Based ECG Signal Classification for Early Detection of Cardiac Abnormalities	778
<i>Anas F. Zaid, Ayyah Mustafa Salih</i>	
Topology-Aware Deep Reinforcement Learning for Joint Resource Allocation in Ultra-Dense 6G Networks	786
<i>Nada Djedouani, Seddik Khemaissia, Ali Almaktoof, Youcef Soufi</i>	
Development and Analysis of High-Q Slotted Patch Antennas for 28 GHz Applications	793
<i>Abrar Aimen Alswei, Adel Saad Emhemmed</i>	
Global Context Modeling in Medical Image Synthesis: A Bottleneck-Attention 3D CycleGAN Approach on the SynthRAD2023 Dataset	801
<i>Ruwayda Ahmed, Mansour Essgaer, Rabia Al Mamlook</i>	
Comparative Analysis of Transformer-Based Architectures and Hybrid Deep Models for Colorectal Cancer Classification from Histopathological Images	808
<i>Hawa Abu Snina, Najah Ali Ja'Adan, Mustafa Ali Abuzaraida</i>	
Adaptive Coding and Modulation for Mitigating Plasma-Induced Scintillation in Satellite Communication Links	814
<i>Mustafa K. Giledi, Marai M. Abousetta</i>	
An Accurate and Efficient Method of Lines Formulation for Electromagnetic Wave Propagation in Time-Varying Media	818
<i>Mustafa K. Giledi, Marai M. Abousetta</i>	
Enhancing Kidney Stone Detection in X-ray Images: A Comparative Performance Analysis of YOLOv8 and YOLOv11 Architectures	822
<i>Ayman Mohammed Al-Alwany, Walaa Bubakr Al-Farjani, Jamila Omran Elhadiriyy Zahow Muftah Khamees</i>	
Design of a Compact Diamond-Shaped MIMO Antenna with Enhanced Isolation Characteristics Using Hybrid DGS and EBG Techniques	828
<i>Abdulbari M. Almaghribi, Moustafa M. Abdalla, Albatool A. Elmezwghi</i>	
Path Loss Prediction for 4G/LTE Mobile Networks in the City of Tripoli at 1800 MHz	835
<i>Saad A. Hamed, Bader M. Aldliow, Moustafa M. Abdalla</i>	
Design of an Integrated Reconfigurable HMSIW Band-Pass Filter Using Metamaterial Technology	841
<i>Aimen Faraj Abdelhamid, Adel Saad Emhemmed, Abdulbast Kriama</i>	
Bio-Inspired Hybrid Antenna Synthesis for Optimizing 5G Network Slicing in Tripoli's mmWave HetNet	847
<i>Sara Fkini, Amer R. Zerek</i>	
Automated Deepfake Image Detection via Mutual Information-Based Feature Selection and AutoML	852
<i>Issa M Milad, Mohammed A Almajbry, Tarek A M Nagem, Abdelsalam M. Maatuk</i>	
Joint Adaptive Waveform Selection and Trajectory Optimization for Enhanced Target Tracking in Mobile Multistatic Radar Systems	858
<i>Ramdan A. M. Khalifa, Marai Abousetta</i>	
Towards Electrolyser Deployment and Manufacturing Capacity of China: Technological Innovation, Localization, Investment, and Policy	862
<i>Mohamed Khaleel, Ziyodulla Yusupov, Wahab Ali Shah</i>	

AI Applications for Power Quality Challenges in Distribution Systems: Technical Barriers and Emerging Trends	868
<i>Mohamed Khaleel, Ziyodulla Yusupov, Ali Hesri, Pirimov Odil, Rashidov Jahongir, Ibrahim Imbayah</i>	
Design and Modelling of a Bidirectional ThreePhase Solid-State Transformer for Advanced Power System Applications	874
<i>Khaled Ghambirlou, Adel Ali Abosnina, Gerry Moschopoulos</i>	
Synergistic Impact of Iron Oxide Contamination and Moisture Ingress on Dielectric Breakdown Characteristics of Vegetable and Mineral Transformer Oils	882
<i>Abdulrahman H. Omar</i>	
Accurate proton exchange membrane fuel cell model parameters estimation using the Hippopotamus Optimization algorithm	887
<i>Alhasan Hamad Almalih, Aiman Nouh</i>	
The Optimal Solution of the Economic Load Dispatch Problem Using an Improved Gradient-Based Optimization Algorithm	893
<i>Saleh Masoud Abdallah Altbawi, Mohsen Bakouri, Abdulsalam Abraheem Almahdi</i>	
<i>Mohamed Hussin Abdullah Altaher, Anis Suliman Ali Bakouri, Mohammed Abdulhadi Almahdi</i>	
Ai-Enabled Power Grid Optimization: A Case Study Of Libya Informed By The Uk Model	899
<i>Abdalslam.S.Imhmed, Mohmed, Hamed.F.Hamed, Omar, Abdulrauf Montser Abdulrahman</i>	
Enhancing Coordination and Power Transfer in Interconnected Regional Energy Systems: Optimal Combination of Load Demand and Optimal Unit Commitment in the total load demand	905
<i>Abdulhakim M. Treki</i>	
Unsupervised Anomaly Detection for Energy Theft Identification in Smart Grids using Using Isolation Forest and Autoencoder Models	911
<i>Maram J. Elzubair, Rayan M. Musa, Ruba M. A. Taj Eldeen, Rawya E. Elbashir, Tasneem A. Alkhalifa</i>	
<i>Rashid A. Saeed, Mamoon M. Saeed, Mohammed S. Elbasheir, Rania A Mokhtar</i>	
SiC-MOSFET Technology for Medium Voltage Wind Inverter	917
<i>Abdallah Hussein, Alberto Castellazzi</i>	
Hybrid PV–Wind Microgrid for Critical Hospital Loads in Gharyan, Libya	922
<i>Walaa Abouirad, Abdurazaq Elbaz</i>	
Modeling and Robust Control of SEIG-Based Wind Energy Systems Using Linear RST and Nonlinear Sliding Mode VOC Techniques	928
<i>Zabouri Abdelhamid, Abdallah Belabbes, Della Krachai Mohamed, Riyadh Bouddou, Adel Oubelaid</i>	
<i>Abdussalam Ali Ahmed</i>	
Dynamic Programming-Based Optimal Unit Commitment for Thermal Power Systems: A Cost-Efficient Scheduling Framework	934
<i>Rachid Belhachem, Farid Benhamida, Ismail Ziane, Taha Muftah Abuali, Riyadh Bouddou</i>	
<i>Abdussalam Ali Ahmed</i>	
Machine Learning-Based Wind Speed and Power Forecasting Using Meteorological Data	939
<i>Taha Muftah Abuali, Abdussalam Ali Ahmed, Yasser Fathi Nassar, Mohamed Mohamed Khaleel</i>	
<i>Hala El-Khozondar, Abdulgader Alsharif</i>	
Automated Defect Detection in Photovoltaic Modules for Enhanced Preventive Maintenance	947
<i>Lotfi Ezzeddini, Amira Talha, Jalel Ktari, Tarek Frikha</i>	

An Enhanced Intelligent Server Monitoring System for Predictive Fault Detection and Triage Prioritization	953
<i>Maria A. M. Abdelsalam, Marwa Y. Mohamed, Ahmed A. M. Ibrahim, Alrahma F. G. Alnour Abdelmajid M. A. Ali, Rashid A. Saeed, Mamoon M. Saeed, Rania A Mokhtar, Mohammed S. Elbasheir</i>	
Optimal PI Controller Tuning for PMSM Speed Control Using PSO with an Asymmetric Cost Function	959
<i>Tariq Alkaar, Mohammed M. B. Makarussu, Ali Almaktoof, Salah Mousa, Abdulhamed Essed</i>	
Techno-Economic Analysis of Solar-Driven Reverse Osmosis Desalination: PV vs. CSP Comparison	964
<i>Muetaz Mohammed</i>	
Effect of GT Exhaust Temperature on HRSG Effectiveness: A Case Study of Misurata Power Plant	969
<i>Ali Hegaig, Mohamed Elhaj, Seraj Alhuderi</i>	
Application of Whale Optimization Algorithm to Optimal Economic Dispatch Problems	975
<i>Abdulwahid A. Khalleefah, Omar G. Mrehel, Abdurazaq Elbaz</i>	
Performance of Grid-on Hybrid System Integrated with Electric Vehicle-to-Grid Using Search Algorithms Optimization	981
<i>Mohamed Nuri Hussin, Mohamed A Hossin, Sadam A Alnaghoughi, Abdulgader Alsharif</i>	
Thermo-Electrochemical Performance Optimization and Parametric Characterization of Solid Oxide Electrolyzer Cells Using MATLAB	988
<i>Ibrahim Tawil, Zahra Gebrel, Salem Khamkhem, Ibrahim Alhaj</i>	
The Environmental Impact of Proof-of-Work Blockchains: An Empirical Comparison of Bitcoin and Green Alternatives	994
<i>Lotfi Ezzeddini, Jalel Ktari, Tarek Frikha</i>	
Optimal Coordination of Directional Overcurrent Relays in IEC Microgrid Using Metaheuristic Algorithms	1000
<i>Mohamed Abdalsalam Alarafi, Ali Alsheibi, Abdalsalam Alhaffar</i>	