

2025 7th Novel Intelligent and Leading Emerging Sciences Conference (NILES 2025)

**Giza, Egypt
25-27 October 2025**



**IEEE Catalog Number: CFP25V11-POD
ISBN: 979-8-3315-9169-4**

**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:	CFP25V11-POD
ISBN (Print-On-Demand):	979-8-3315-9169-4
ISBN (Online):	979-8-3315-9168-7

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

Optimum Design of Cold-Water Inlet in a Single-Tank Electric Water Heater	1
<i>Seifeldin Mohamed, Ahmed Fawky, Mahmoud Shaaban, Amr Guaily, Mohamed Elshabrawy</i>	
An N-Qubit Teleportation Protocol with a Generalized GHZ State	5
<i>Abdelrahman E. Ahmed</i>	
Comparative Analysis of Genetic Algorithm, Simulated Annealing, and Particle Swarm Optimization for PID Parameter Tuning in Continuous Stirred-Tank Reactor	11
<i>Khaled Fikry Ibrahim</i>	
ZeroSeedRec: Enhancing Zero-Shot Recommendation with Domain-Specific Instruction-Tuned LLMs: A Pipeline for Synthetic Seed and Self-Instruct Data Generation	15
<i>Eyad Elbella, Ahmed Aly, Rasha Kashef</i>	
Securing IIoT Networks Using a Hybrid PCA-CNN-Based Intrusion Detection System	19
<i>Hesham Kamal, Maggie Mashaly</i>	
Simple CMOS Pulse Shapers Designs	25
<i>Julia Nako, Georgia Tsirimokou, Costas Psychalinos, Thomas Noulis</i>	
Evaluating MobileViT for Disease Diagnosis in Medical Imaging: A Systematic Review	29
<i>Hoda O. Mahfoz, Sahar A. Fawzi, Ahmed F. Elnokrashy, Mai S. Mabrouk</i>	
Gammatone Filters: Approximation and Design Example	33
<i>Julia Nako, Georgia Tsirimokou, Costas Psychalinos, Ahmed S. Elwakil</i>	
Gene Expression-Based Classification of Breast Cancer Using Network Analysis and Machine Learning Techniques	37
<i>Omar Emad Hamdy, Ghada Kareem, Muhammad Maher, Marwa M. A. Hadhoud, Rana Hossam Elden</i>	
The Future of Offshore Wind Energy – Analyzing HVDC and HVAC Solutions	41
<i>Anna Jarosz, Jerzy Baranowski, Marta Zagorowska</i>	
Optimizing LoRa for Underwater Acoustic Links: Carrier Frequency and Spreading Factor Trade- Offs	45
<i>Mohamed Farag Elshahat, Mohamed R. M. Rizk, Said E. El-Khamy</i>	
A Hybrid Ensemble-Based Intrusion Detection System for IoT Using Feature Optimization and Class Balancing	50
<i>Mahmoud Gamal Abdel Nasser, Ahmed M. Mattar</i>	
Revolutionizing Wheat Disease Management: Real-Time Detection and Classification Using Enhanced YOLOv11 Neural Networks	54
<i>Yahia M. Anas, Seifeldin A. Ismail, Nermin K. Negied</i>	
Leader-Follower Formation Control of Mobile Robots Via Parallel Distributed MPC	60
<i>Mohamed Tamer Assy, Hannah El-Reweiny, Ayman A. El-Badawy</i>	
Approximation-Based Optimization of Nonlinear Functions Using Taylor Series Expansion and Radial Basis Functions	66
<i>Yara Hossam Elidn Elkassaby, Irene S. Fahim, Mohamed H. Gadallah</i>	

Adaptive Domain Decomposition for Surrogate-Based Global Optimization	70
<i>Yara Hossam Elidn Elkassaby, Irene S. Fahim, Mohamed H. Gadallah</i>	
Evaluating TECD Deep Model for Multi-Classification of Triple-Negative Breast Cancer Gene Expression Data.....	74
<i>Hend A. Bakr, Manal Abdel Wahed, Heba M. Afify</i>	
Flow2Text: A Three-Stage Path from Raw Packets to Natural-Language Incident Reports in Industrial Networks	78
<i>Osama A. El Awadia, Ahmed Hossam, Sameh A. Salem</i>	
Framework of Bidirectional Supplier Buyer Matching in Supply Chains Using Blockchain Smart Contracts and Cooperative Game Theory.....	84
<i>Zakaria Yahia, Youssef Elsherif, Marwan Elsehly, Zahraa Bakr, Omar Abdelghany</i>	
Effect of Filling Ratio on Two-Phase Closed Thermosiphon Heat Transfer Under Constant Confinement and Weber Number	90
<i>Ahmed G. Rahma, Frédy Abadassi, Abdellah Ghenaïm, Pierre Francois, Yannick Hoarau, Denis Funfschilling, Abderahmane Marouf</i>	
Enhancing Breast Cancer Survival Prediction with Survival Analysis and Calibrated Machine Learning	95
<i>Abdelgwad Elashry, Salma Ahmad Abdelhamid, Salma Ahmed Hassan, Menna El-Zahaby, Alyaa A. Hamza</i>	
An Adaptive Intelligent Agents Framework for Forward Contracts and Dynamic Tariffs in Distributed Energy Systems	100
<i>Mai Elgazzar, Zakaria Yahia, Amr Eltawil</i>	
Modeling and Parameter Estimation for On/Off Solenoid Valve	104
<i>Muhamed M Hashem, Khaled A. Ghamry, Amr Saleh, Ibrahim A. Elsherif</i>	
High Refractive Index Iron Pyrite for Enhanced Light–Matter Interaction in Modern Optoelectronic Devices.....	109
<i>Omar Hagra, Hatem Yousry, Yehea Ismail, Nageh Allam, Samar Fawzy</i>	
Hybrid ResNet–Transformer Framework for Arabic Handwritten OCR in Exam Grading and Manuscript Digitization.....	113
<i>Aya Elbereky, Hager Elshenhab, Noura Maklad, Ahmed Fares</i>	
Design and Implementation of Deep Learning Architecture for Detecting Malicious Network Traffic in Cloud Systems	117
<i>Habiba Amgad Hendy, Maggie Mashaly</i>	
VirtSonic: A Conditional U-Net-Based Virtual Ambisonic Microphone for Mono-To-Spatial Audio Generation	121
<i>Mohamed Adel Elshafei, Hisham H. A. Othman</i>	
Adaptive Anomaly-Based Intrusion Detection in Cloud Environments Using Reinforcement Learning	125
<i>Ahmed Wael Afify, Mohamed M Helal, Mervat Abu-Elkheir, Maggie Mashaly</i>	
EASTER: End-To-End Alignment and Style-Aware Table Extraction and Recognition.....	129
<i>Mohamed Ahmed Nassar, Omar Ahmed Nasr</i>	
A Tabular Deep Learning Approach for Access Control Using TabNet	134
<i>Abdelrahman Abouelabbas, Ahmed H. Abdel-Gawad, Yasmine Fahmy</i>	

Robust Traffic Sign Recognition Against FGSM and BIM Adversarial Attacks	139
<i>Nada A. Ismail, Sama A. Yousef, Omar M. Fahmy, Mohamad Samir A. Eid</i>	
Advanced Machinery Fault Detection Using Hybrid AE-MLP Deep Learning Model	143
<i>Amir R. Ali, Hossam Kamal</i>	
Optimizing Product Design Workflows Through 3D Scanning and Reverse Engineering Technologies	149
<i>Amir R. Ali, Mohamed W. A. Ramadan, Marwan Helal</i>	
A Comprehensive Study of Neural Models for Arabic Text-To-Speech Synthesis	153
<i>Abdelhalim Ashraf, Abdelrahman Ramadan Fathi, Ali Adel Sayed Ahmed, Omar Tamer Mohammed Ameen Hassanin, Yasser Hifny, Eid Osama Eid El Sayed Yehia</i>	
Model Predictive Contouring Control of UAV in Dynamic Environments	158
<i>Yousef Hussein, Farida Bahaa, Ayman A. El-Badawy</i>	
Design for Safety and Infection Control in Surgical Assistant Robots	163
<i>Rania Elbana, Rokia Tolpa, Basma Eltlhawy</i>	
A Real-Time BCI for Stroke Hand Rehabilitation Using Latent EEG Features from Healthy Subjects	168
<i>Fady. M. Omar, Amr. M. Omar, Khaled Eyada, Mohamed Rabie, Ahmed. M. Azab, Mohamed A. Kamel</i>	
Sensorless Velocity Control of a Non-Salient PMSM Using Flux Observing Field-Oriented Control	174
<i>Rami Shoqair, Ramy Mahmoud, Ayman El-Badawy</i>	
Architectural Depth and Hyperparameter Impact on HTM Image Classification Performance	179
<i>Mohamed Ibrahim Abdelaziz, Islam Elgedawy</i>	
Distributed Control of Miniature Car-Like Robots Using Multi-Agent Reinforcement Learning	183
<i>Abdelrahman Sayed, Ayman A. El-Badawy</i>	
NileAdvisor: AI-Powered Academic Advising and Recommendation System	189
<i>Mariam Alaa, Ganna Ayman Elroby, Hanna Ehab Sayed, Mariam Mohamed Farhat, Samaa. Ahmed Abdelraouf, Mohamed Ibrahim Ragab, Ensaf H. Mohamed</i>	
Aduvia: A Multi-Purpose AI-Powered Learning Management System (LMS)	195
<i>Ahmed Amin Megahed, Ahmed Momen Ibrahim, Ahmed Moussa, Mohamed Farag Arnous, Youssef Elmoataz, Heba K. Aslan, Ismail Ahmed Abu-Krishna, Malak Magdy Abdelsattar</i>	
Enhancement of Rubberized Concrete Mechanical Properties by Using New Casting Technique	199
<i>Omar Farahat, Mohamed Elshabrawy, Ivan Miskdjian, Mostafa Abdeen, Hossam Hadhod</i>	
Simulation-Based Resource Allocation Analysis in Home Appliance Distribution Center	203
<i>I. Fikry, Mahmoud Hesham Elaraby, Amr Eltawil</i>	
IMenu: A Smart Table Interface Combining TUIs, Gestures, AR, Eye-Gaze, and Emotion Recognition	207
<i>Haidy Maher El-Amir, Osama Hosam Abdellatif, Ahmed Abdelmoneim Mazrou, Mazen A. Ebrahim, Ali El-Beih, Ayman Atia</i>	
An Enhanced Mechanical Recycling Method for Plastics to Eliminate Novel Entities Effect	213
<i>Heba Fahmy, Essam Soliman, May Youssef</i>	

Khepri Drive 1.0 : A Fully Functional Field Oriented Controller for Realistic Mobility	219
<i>Ahmed Elsherbiny, Ramy Mahmoud, Amir R. Ali</i>	
Underwater Depth Estimation Using Pinax Model for Refraction Modeling and Correction.....	223
<i>Hussein H. Elsayed, Amr S. Abdelaal, Ahmed R. Farouk, Hossam A. Selem, Mustafa M. Abdelmohsen, Mahmoud Y. Nabawy, Eyad M. Zaki, Samer A. Mohamed, Mohammed I. Awad, Hossam E. Abd El Munim</i>	
Design and Development of an Autonomous Pipeline Inspection Robot with Integrated Control System	227
<i>Amir R. Ali, Mohamed W. A. Ramadan, Youssef Moenes</i>	
Hardware Implementation of an Impedance-Based Field Oriented Control on a Custom BLDC Motor.....	231
<i>Ramy Mahmoud, Ahmed Elsherbiny, Amir R. Ali</i>	
Model-Free High-Order Sliding Mode Control for Stabilization of Underwater Vehicles.....	235
<i>Mahmoud Y. Nabawy, Eyad M. Fouad, Hussein H. Hussein, Ahmed R. Farouk, Mustafa M. Sobhy, Amr S. Abdalla, Hossam A. Mohamed, Samer A. Mohamed, Mohammed I. Awad, Hossam E. Abd El Munim</i>	
Improving a Large Batch-Model Manual Assembly Line by Applying Value Stream Mapping	240
<i>Abdullah A. Elfar</i>	
Automated Application-Specific CNN Design with Adversarial Defense and LLM-Based Evaluation.....	246
<i>Karim Bassel Samir, Fady Fady Fouad, Matthew Sherif Shalaby, Mina Fadi Mohsen, Rafik Tamer Ghaly, Shady Emad Sabry, Tasneem A. Awaad, Mohamed Abdelsalam Hassan, M. Watheq El-Kharashi</i>	
Temporal Pedestrian Behavior Prediction Using LSTM Networks.....	250
<i>Hana I. Eldemery, Hadwa H. Pasha, Noha A. Hamid, Milad M. Ghantous</i>	
Mitigating DDoS Threats in VANETs: A Real-Time Simulation Approach Using SUMO and NS-3	254
<i>Abdelgwad Elashry, Ahmed Elasmr, Yasmeen Khalifa, Mohamed Bahnassy, Alyaa A. Hamza</i>	
An Ensemble Learning Approach for AI-Powered Chatbot for Mental Health Assessment and Support	259
<i>Abdelrahman H Elsaid, Mohammed A Khattab, Nour S Zawawi, Nermin K Negjed</i>	
Attentional Language Modeling for Text to 3D Generation.....	265
<i>Marena Anis Labib, Ali Hamdi, Mohammad Saiedur Rahaman</i>	
A Distance Metric Learning SMOTE (DML-SMOTE) Approach for Imbalanced Sensor-Based Human Activity Recognition	269
<i>Eslam M. Mustafa, Muhammad Elsayed, Dina Elreedy</i>	
Suppression of Coupling in MIMO Antenna System Using Neutralization Line.....	275
<i>Ahmad H. Abdelgwad</i>	
IoT-Based Non-Invasive Hemoglobin Prediction Using Machine Learning.....	279
<i>Seifeldin Ibrahim, Abdulmoniem Mohamed, Omar Abdulmonem, Omar Tawfik, Ahmed Abdelmonem, Ensaf H. Mohamed</i>	
A Federated Intrusion Detection Framework for IoT Using Visual Encoding and Lightweight Secure Aggregation	283
<i>Karim Ahmed Mabrouk, Khaled Metwally, Mohamed Sobh, Ayman Bahaa-Eldin</i>	

Real-Time Obstacle Avoidance for a Mobile Robot Using CNN-Based Sensor Fusion	287
<i>Lamiaa H. Zain</i>	
A Customized Convolutional Neural Network for Classifying Retinal Diseases in OCT Images	292
<i>Jihan Farouq, Abeer Eldessoki</i>	
Pareto Optimal Synthesis of a Stephenson III Six-Bar Mechanism for Spastic Wrist Rehabilitation	296
<i>Iman Shalabi, Ahmed Asker</i>	
Towards Real-Time Neural Machine Language Translation	300
<i>Nour S Zawawi, Jasser Mohamed</i>	
HAXNet: A Hybrid Dual Attention Cross-Stitch Network for Multi-Task Water Quality Forecasting	304
<i>Marwah A. Helaly, Sherine Rady, Mohamed Mabrouk, Mostafa M. Aref, Sebastian Villarroya, Jose M. Cotos</i>	
Experimental Comparison of Fixed-Center and Optimized Geared Polycentric Knee Exoskeletons	310
<i>Ahmed Madbouly, Ahmed Kira, Mohamed A. W. Shalaby, Ahmed Asker</i>	
An Integrative Computational Pipeline for Proteomic Biomarker Discovery: A Pilot Study on Egyptian Ewing Sarcoma Patients.....	314
<i>Farah Khaled Mohamed, Eman Badr</i>	
Atmospheric Transmittance and Its Effect on the Performance of IR Seeker	318
<i>Mohamed Ali, Hany M. Mohamed, Mohamed Abdo M., Mohamed E. Hanafy</i>	
Transformers Outperform CNNs: A Large-Scale Benchmark for AI-Powered Skin Disease Diagnosis.....	324
<i>Nour Atef Elhadidy, Nouran Yasser Salama, Farida Ehab Elselmy, Sara Ayman Zeiton, Ahmed Gomaa</i>	
Development of a Soft Robotic Finger for Enhanced Dexterity and Manipulation.....	328
<i>Yousef S. Abdallah, Hossam H. Ammar</i>	
Resilient GreenEdge Fusion: Lightweight AI for Real-Time Crop-Energy Optimization and Self-Healing Smart Grids on IoT-Edge Devices	332
<i>Mohamed A. Wahab Ali</i>	
QRaft: Quantum-Enhanced Raft Protocol Using QRNG and QKD for Secure Distributed Consensus.....	336
<i>Youssif Khalid Mahmoud Attia</i>	
Protecting Mobile Communication Channels: Adaptive Super Learner-Based Malware Detection for Android	340
<i>Noureldin H. Radwan, Saad M. Ibrahim, Reem Essameldin</i>	
Deep Augmented Object Detection for Waste Material Recognition	346
<i>Marena Anis Labib, Ali Hamdi, Mohammad Saiedur Rahaman</i>	
Generalized Index Modulation with Error Propagation Mitigation for OFDM.....	350
<i>A. Atef Ibrahim, Amr A. Nagy, Amr Abdelaziz, Ashraf Mahran</i>	
Numerical Investigation of a Symmetric-Unit-Cell-Based Tunable Frequency Selective Surface with Stable Angular Response.....	354
<i>Francesca Venneri, Ladislau Matekovits</i>	

From Genome Sequence to Image: Human Papillomavirus Risk Detection	358
<i>Muhammed S. Hammad, Farha H. Taher, Afaf A. Elmogy, Abram W. Makram</i>	
An Intelligent Virtual Assistant for Symptom Assessment and Healthcare FAQ Resolution	362
<i>Yomna Elgharbawy, Mai Elgazzar, Nada Atef, Farah Fawki, Bassant Saad, Ziad Elshaer, Ensaf Mohamed</i>	
From Perception to Distance: A Lightweight RGB-D Pipeline for Adaptive Cruise Control.....	366
<i>Youssef Mohamed Fathy, Hesham Hamed Ibrahim, Omar M. Shehata</i>	
Greedy AP-UE Association in User-Centric Cell-Free Massive MIMO Systems	371
<i>Mariam Kandil, Michael Ibrahim, Bassant Abdelhamid, Mohammed Karmoose</i>	
Comparative Study of Gradient Descent and Deep Reinforcement Learning in Multi-User RSMA Systems.....	376
<i>Basmla Shamseldin, Ann Zedan, Mohamed Shalma, Ahmed El-Mahdy</i>	
Through the Eye: Virtual Reality Simulation of Retinal Diseases for Educational Purposes.....	380
<i>Rania Hassan, Seif Eldeen Mostafa, Mawada Nagy, Sara Fouad, Rana Youssef, Walid Al-Atabany</i>	
Cancer Cell Detection Using One Dimensional SiO ₂ /GaAs Photonic Crystal Biosensor	386
<i>Mostafa S Mohamed, Sahar A. El-Naggar, Yasser M El Batawy</i>	
Simulation of CubeSat Attitude Control Subsystem Using B-Dot and PD Controllers.....	390
<i>Ahmed Moussa Said, Samir Samy Michael, Ammar Magdy, Omar Hisham, Mohamed Lotfy</i>	
Metaheuristic PID Tuning for AVR Systems Using MPSO and PSOGSA Algorithms	396
<i>Ahmed G. Mahmoud, Mohamed A. Amin, Mostafa M. Elhakim, Mohamed A. Eid, Seif A. Qassem, Ahmed M. Zobaa</i>	
UAV Support System Integration for Autonomous Vehicles Using YOLOv8 Object Detection.....	400
<i>David Kahle, Ahmad Salman, Samy El-Tawab</i>	
A Machine Learning Approach for Fault Detection in Series-Compensated Three-Phase Transmission Line System Using DWT-Based Feature Extraction	405
<i>Esraa M. Shalby, Almoataz Y. Abdelaziz, Eman S. Ahmed, Ahmed G. Mahmoud</i>	
Polarization Dependence of the Absorption Coefficient of Semi-Spherical Quantum Dots	409
<i>Mira S. Elsoukary, Yasser M. Elbatawy, Nouran M. Ali</i>	
An Integer Bi-Objective Optimization Model for External Trucks Scheduling Considering Turnaround Time and Multiple Appointments	413
<i>Omar Abdelsameia Galallah, Ahmed Moamen Taha, Rahma Samy Azzam, Hosam Hassan Ghazal, Mohamed Samir Gheith</i>	
Photorealistic Image Synthesis for Autonomous Driving Applications.....	418
<i>Mohamed El Sobky, Walid Al-Atabany</i>	
A Comparative Study of Data Poisoning Detection in Wearable AI Systems Using Machine Learning and Large Language Models	423
<i>Abdelaziz Amr, Mohamed Youssef, Mamdouh Koritam, Abdullah Emam, Hussein Ahmed, Ensaf H. Mohamed</i>	
Industrial Digital Twin Integration with ERP and Computer Vision for Real-Time Synchronization.....	427
<i>Islam Ali, Hussein Badr, Helmy Yasser, Gamal Hesham, Zeyad Ossama</i>	

Enhancing Medical Visual Question Answering with Explainable Knowledge Graphs and Agentic RAG	431
<i>Marryam Yahya Mohammed, Mariam Nabil, Nada Radwan, Yomna Ashraf, Esraa Mohamed, Ziad Elshaer, Ensaf H. Mohamed</i>	
A Bond Graph Model for VOC Detection Via Polymeric Whispering-Gallery-Mode Optical Sensors	435
<i>Amir R. Ali, Farah Ezzeldin</i>	
Rapid Electrochemical Detection of Oxytocin Residues Using a MIP-Engineered Nanocomposite Sensor	439
<i>Alyaa I. Salim, Nour H. Anter, Samar H. Tawakey</i>	
Shared Autonomy in Swarm Robotics Algorithms for Search and Rescue Missions	443
<i>Mario Ghaly, Freddy Amgad, Michael Salieb, Rana Elgahawy, Roaa Bahaa, Ahmed Amr, Mohamed Abdelelsalam, Mohamed Ellethy, Tamer Elbatt, Neven Elsayed</i>	
Low-Cost Fabrication of Digital Microfluidic Platform	448
<i>Salma Ali, Reem Fikry, Sama Fahmy, Mariam Niazy, Heba Ragab, Ahmed M. R. Fath El-Bab</i>	
AASTE: Arabic Aspect Sentiment Triplet Extraction	453
<i>Abdelrahman Galhom, Aliaa Abobakr, Menna Noseer, Sohaila Abdalgwad, Rowan Nour, Ahmed Fares</i>	
AI-Driven Smart Water Flow Meter System for Real-Time Water Monitoring and Probabilistic Leakage Detection	457
<i>Noor El-Deen M. Mohamed, Omar E. Akwah, Ahmed N. Mohamed, Mohamed M. El-Dakroury</i>	
Adaptive Emotionally Expressive Smart Avatar for Assistive Healthcare Applications	463
<i>Omar Elmeselhy, Yomna M. I. Hassan, Amal Aboulhassan</i>	
Real-Time Student Drowsiness Detection Using CNN and Spatial Transformers in Online Learning	467
<i>Ahmed M. Soliman, Shahd A. Ali, Mostafa A. Abdulhalim, Meram M. Hemaïd, Nouran H. Qassem, Mohamed H. Abdellatif, Samah El-Tantawy</i>	
A Scalable Over-The-Air Firmware Distribution Architecture for Industry 5.0 Based on SoC	471
<i>Ahmed I. Ahmed, Mohamed A. Elshiemy, Lobna A. Said, Ahmed H. Madian</i>	
From Monocular Vision to Spatial Audio: An Assistive Navigation System for the Visually Impaired	477
<i>Ahmed A. Farid, Wessam Zaid, Mai Mohammed, Omar M. Fahmy, Ahmed S. Abd-Rabou</i>	
Feature Reduction of SVM-Based Classifier for Predictive Maintenance of Rotating Machines	482
<i>Ahmed Mokhtar Elsayed</i>	
A Hybrid Local Protein Alignment Method Using Optimized Smith-Waterman and Growth Optimizer	486
<i>Abdelrahman Mohamed, Yousef Maaty, Yousef Mohamed, Abdelrahman Ahmed, Ibrahim Mamdouh, Khaled Fouad, Ibrahim Attiya</i>	
Benchmarking Soft Sensors for Semiconductor Manufacturing: Random Forest Vs. Semi-Supervised Gaussian Process Regression	490
<i>Kariman Elsayed, Raafat Shalaby</i>	
L1-PID Control Strategy for Enhanced Path Tracking in UGVs	494
<i>Ziad Elmaghraby, David Nassif, Ayman El-Badawy</i>	

Deep Reinforcement Learning for Foundational Control of a Continuum Robot Towards Cooperative Manipulation	500
<i>Motaz Elsaman, Mahmoud Abu-Alfadl, Ahmed Fouad, Mahmoud Fathallah, Yousef Megawer, Abdullah Ahmed, Haitham El-Hussieny</i>	
Enhanced Local DNA Sequence Alignment Using Pufferfish Optimizer and Banded Smith-Waterman.....	504
<i>Habiba Walid Al-Hallag, Malak Hossam Hassan, Sara El Sayed Soliman, Rokia Mohamed Abd Almeneam, Ibrahim Mamdouh, Khaled Fouad, Ibrahim Attiya</i>	
Optimizing Vehicle Routing Problem Using Kepler Optimization Algorithm	508
<i>Khadija Ali, Kholoud Amer, Sama Elmogy, Taghred Farhat, Eman Naji, Ibrahim Mamdouh, Khaled Fouad, Ibrahim Attiya</i>	
Dynamic Emission and Capacity Aware Traffic Rerouting for Urban Road Networks.....	512
<i>Marwa Elbadawy, Mohamed Elshabrawy, Raafat Shalaby</i>	
DineMate: Enhancing Hospitality with an AI-Driven Restaurant Robot	516
<i>Ahmed Mostafa, Khaled Ayman, Omar Sobhy, Hossam H. Ammar</i>	
SCAR-Net: A Selective Channel Attention with Residuals Network for High-Resolution Remote Sensing Scene Classification	522
<i>Ahmed Gomaa, Omar M. Saad</i>	
Optimizing the Detection of Gene Mutations Associated with Depression Using PUMA Optimizer.....	526
<i>Alaa Abdelmonem, Waad Abdelkhalek, Aya Elsaed, Ibraim Mamdouh, Ibrahim Attiya, Khaled Fouad</i>	
Climate Impact on Internet Connectivity and Nighttime Illumination: A Data-Driven Assessment	530
<i>Reem Ali, Sarah Ahmed, Noha Gamaleldin</i>	
A Lightweight Super-Resolution CNN for OFDM Channel Estimation	534
<i>Amna Shaheen, Mustafa Elattar, Laila H. Afify</i>	
Arabic License Plate Recognition in Low-Visibility Conditions Using Deep Learning Models.....	538
<i>Mohamed Ahmed Ibrahim, Kamal El-Saady, Mourad A. Kenk</i>	
A Deep Learning Approach for Modeling Tuberculosis with Differential Infectivity	544
<i>Zyad Abdelfattah, Malak El-Hamshary, Rowida Mohamed, Ward El-Salkani, Youssef Kotb, Youssef Mortada, Farah Yehya, Mikhail Daoud, Muhammad Rushdi</i>	
ModaNet: Synthesizing Missing MRI Sequences with GANs Using Patch-Based Discrimination.....	548
<i>Amr Shaarawy, Ghada Khoriba, Essam A. Rashed</i>	
Categorization of Telecom Customers Complaints in Saudi Dialect Using Deep Learning Approach	553
<i>Ibrahim F. Moawad, Mohamed Gammar, Baraa Khaled, Yousef Atif Hazzaa, Yasser Aljohani, Mohammed Khalid Al-Hamdan</i>	

Author Index