

2025 4th International Conference on Smart Cities, Automation & Intelligent Computing Systems (ICON-SONICS 2025)

**Malacca, Malaysia
14-17 October 2025**

IEEE Catalog Number:
ISBN:

CFP25SON-POD
979-8-3315-8764-2



Copyright © 2025, 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:	CFP25SON-POD
ISBN (Print-On-Demand):	979-8-3315-8764-2
ISBN (Online):	979-8-3315-8763-5

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

Covert Data Exfiltration via Electromagnetic Side-Channel Emissions from Computer Memory	1
<i>Oladapo A. Ajikey, Toya Acharya, Mohamed Chouikha, Annamalai Annamalai, Akshay Kulkarni Sheikh Tareq Ahmed</i>	
Analysis of Industrial Noise from Machinery: A Case Study of Noise Exposure at Cable Factory, Indonesia	8
<i>Sesilia Audina, Fahmy Rinanda Saputri, Nicholas Pranata</i>	
Noise level analysis using I-SIMPA Simulation: A case study in the Hotel Operations Laboratory, Universitas Multimedia Nusantara, Indonesia	14
<i>Fahmy Rinanda Saputri, Nicholas Robert, Vanesa Lorent, Muhammad Salehuddin</i>	
IoT Based Plant Monitoring using Solar and LoRa Technology	19
<i>Pravin Nair Gunasegaran, Thinesh Ganesan, Sumendra Yogarayan</i>	
Multilingual Audio-Based Depression Detection using Audio Augmentation and Data Efficient Image Transformer	24
<i>Monica Pratiwi, Nur Hayati</i>	
Gender Differences in EEG Absolute Power within Alzheimer's Disease, Frontotemporal Dementia, and Cognitively Normal Individuals	31
<i>Shahid Iqbal, Humaira Nisar, Kim Ho Yeap</i>	
Cross-Lingual Probing and Community-Grounded Analysis of Gender Bias in Low-Resource Bengali	37
<i>Md Asgor Hossain Reaj, Rajan Das Gupta, Jui Saha Pritha, Abdullah Al Noman, Abir Ahmed Golam Md Mohiuddin, Tze Hui Liew</i>	
Adaptive Tuning of the Unscented Kalman Filter using Particle Swarm Optimization for Inertial-GPS Sensor Fusion Systems	45
<i>Psyche T. Malabo, Bobby D. Gerardo</i>	
Optimizing Leukemia Classification with FineTuned SENet Variants: A Comparative Study on Binary and Multi-Class Tasks	51
<i>Humaira Nisar, Kye-Fung Lee, Siti Atiyah Ali</i>	
Atrous Spatial Pyramid Pooling(ASPP)-Enhanced U-Net with Squeeze-and-Excitation(SE) Channel Recalibration for Early Smoke Classification	57
<i>Lola Naomi Enzelin, Samuel Ady Sanjaya, Suyoto, Jansen Wiratama, Santo Fernandi Wijaya, Rudi Sutomo</i>	
Advancing Prostate Cancer Diagnosis with DCGAN-Generated Synthetic Histopathology Images	63
<i>Sayedur Rahman, Touhid Alam, Shusmita Anjum Aziz, Md Arifur Rahman, B M Taslimul Haque Tze Hui Liew</i>	
IntelliGrow: Image processing with IoT alert for pests and diseases classification in chili plant	69
<i>Jardel Mckenzy Melvin, Danial Md Nor, Fahmy Rinanda Saputri, King Lee Chua, Abdel Rahman Al Ali Fahad Saleh M Abdallah</i>	
Multi-Agent Reinforcement Learning for Trajectory and Handover Optimization in UAV-Assisted 6G HetNets	74
<i>Yasir Ullah, Mardeni Roslee, Farman Ali, Mohd Azmi Ismail, Idris Olalekan Adeoye, Irfan Khan</i>	

Octagonal Patch Antenna with Modified SRR Width and Ground Slot for Sub-6 GHz Band	79
<i>Fardin Kabir, Mardeni Roslee, Anas Abas, Yasir Ullah, Jun Jiat Tiang, Fahmid Kabir</i>	
FSO Transmission Framework Employing F-OFDM for Error Probability and Divergence Loss Evaluation in 5G Networks	85
<i>Farman Ali, Yasir Ullah, Mardeni Roslee, Irfan Khan, Noorlindawaty Md Jizat, Fardin Kabir</i>	
System-Wise Reliability Assessment in District Heating Systems: Integrating Technical and Customer-Centric Indices	90
<i>Amir Rafati, Marayamsadat Tahavori, Hamid Reza Shaker</i>	
Medium Voltage Drive with Dynamic Power Quality Compensation for High-Harmonic Industrial Environments	95
<i>Naveen Garg</i>	
AI-Driven Diagnostics and Predictive Maintenance in NPI Service Engineering: A Comprehensive Survey of Methods, Applications, and Future Directions	101
<i>Makrand Godbole, Adwaita Jadhav</i>	
Design for Serviceability in Complex Electromechanical NPI Products: A Comprehensive Survey of Principles, Metrics, and Field Integration Strategies	109
<i>Makrand Godbole</i>	
Design and Validation of Automated Drone Missions for Agricultural Area Scanning in Smart Farming	116
<i>P.M. Winarno, Fenina Adline Twince Tobing, Muhammad Rizki Fadhil</i>	
Comparative Evaluation of Object Detection Models for Identifying Fruit Flies in Snake Fruit Cultivation	122
<i>Indah Desri Wahyuni, Nabila Husna Shabrina, Suputa, Riya Fatma Sari</i>	
From Pixels to Pathogens: A Review of Computer Vision in Strawberry Disease Detection	128
<i>Tan Shie Chow, Muhammad Imran Ahmad, Fahmy Rinanda Saputri, David Agustriawan Mohd Nazri Abu Bakar, Raja Abdullah Raja Ahmad, Shafie Omar, Wan Mohd Faizal Wan Nik Shahrul Fazly Sulaiman</i>	
Optimized Deep Learning Models for Robust Splicing-Based Image Forgery Detection Using CASIA Mixed Dataset	134
<i>Irmawati, Nur Hayati</i>	
Faster R-CNN and U-Net Based Image Recognition to Classify Rice Plants Health	140
<i>Daffi Bintang Firdaus, P. M. Winarno, Moeljono Widjaja</i>	
A study of the Shewhart Median Scheme with Estimated Process Parameters based on Expected Median Run Length for Sustainable Manufacturing	146
<i>Zhi Lin Chong, Wei Lin Teoh, Peh Sang Ng, Huay Woon You, Sin Yin Teh</i>	
Evaluate Road Depressions with Deep Learning and Mobile Application	152
<i>Wei-Fun Chan, Ee-Mae Ang</i>	
Minimizing Packaging Boxes in Online Retail Fulfillment Using Multi-Strategy Heuristics and Extreme-Point Based 3D Bin Packing	158
<i>Widiq Waskito Adimukti, Samuel Ady Sanjaya</i>	
Minimizing E-commerce Order Cancellation Cost Using Shap-based Explainable XGBoost	164
<i>Angelin, Samuel Ady Sanjaya</i>	

Cosine Similarity-Based Spectral Graph Clustering of ArchiMate Relationships and Metadata for Information System Consolidation	170
<i>Jovita Tandiana, Samuel Ady Sanjaya</i>	
Forecasting of Clinical Program Gross Growth over Revenue through Outcomes and Workforce Metrics using LSTM-XGBoost	176
<i>Fiorenza Irene Christabelle Suryanto, Samuel Ady Sanjaya</i>	
Sentiment Analysis of Carbon Trading in Indonesia: A Machine Learning Approach Using Naïve Bayes	182
<i>Kelvin Antonio, Fenina Adline Twince Tobing, Sy. Yuliani Yakub, Eunike Endariahna Surbakti</i>	
<i>Wirawan Istiono, Alexander Waworuntu</i>	