

2025 5th International Conference on Electronic and Electrical Engineering and Intelligent System (ICE3IS 2025)

**Yogyakarta, Indonesia
6-7 August 2025**

IEEE Catalog Number:
ISBN:

CFP25BE5-POD
979-8-3315-8524-2



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:	CFP25BE5-POD
ISBN (Print-On-Demand):	979-8-3315-8524-2
ISBN (Online):	979-8-3315-8523-5

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

Optimizing Cardiovascular Disease Risk Assessment with Machine Learning Models	1
<i>Salma Khaira Almuna, Alexander Agung Santoso Gunawan, Kaila Anindya Ridhanto</i> <i>Jeffrey Junior Tedjasulaksana</i>	
Sentiment Analysis of E-Commerce Reviews: Insights for Strategic Improvement	7
<i>William Alan Cahyadi, Patricia, Alexander Agung Santoso Gunawan, Jeffrey Junior Tedjasulaksana</i>	
Diabetic Retinopathy Detection Based on Convolutional Neural Networks with SMOTE and CLAHE Techniques Applied to Fundus Images	13
<i>Sidhiq Mardianta, Affandy, Catur Supriyanto, Adi Wijaya, Moch Arief Soeleman</i>	
Quadrilemma-Based Optimization for Grid-Connected Industrial Microgrid Sizing: Balancing Technical, Economic, Environmental, and Social Factors	19
<i>Nurul Nadia Ibrahim, Jasrul Jamani Jamian</i>	
Role of Artificial Intelligence-based Machine Learning in Improving the Quality of Students' Academic Writing	24
<i>Abdullah, M Aqil Fahmi Sanjani, Riza Faishol, Eny Nur Aisyah, Aji Wahyudin, Sevia Diana Safitri</i> <i>Putri Fahmadia Dinda Maulida Thohir</i>	
A Deep Learning Approach to Sentiment Analysis of Indonesian Stock Market Using IndoBERT	30
<i>Jason Hartanto, Rhio Sutoyo, Timothy Liundi, Esther Widhi Andangsari</i>	
Performance Evaluation of Pre-trained CNN Model for Human and AI-Generated Paintings Classification	36
<i>Marsella, Mikel Vanesius Tanutomo, Steven Sumadi, Ivan Sebastian Edbert</i>	
Heart Attack Risk Prediction Based on Patient Specific Details Using K-NN and SVM Algorithm	42
<i>Jordan Jeferson Juliman, Dwight Fanuel, Maxwell Zefanya, Puti Andam Suri</i>	
Analysis Dynamic of Spring Dumper Control System on Snowmobile with Fuzzy Logic to Improve Stability in Snowy Terrain	48
<i>Aranda Ilham Zubair, Dwi Astharini</i>	
Analysis Of The Success Factor Of Enterprise Resource Planning (ERP) Oracle Netsuite In Coal Mining Company With The Delone And Mclean ModelL Approach	54
<i>Jodhi Caster, Viany Utami Tjhin</i>	
Design and Analysis of Triangular Patch UWB Antenna with Band Notch	60
<i>Muhammad Azmi, Kartika Praty Dena Zaam, Harfan Hian Ryanu, Muhammad Rendra Perdana</i> <i>Aminah Indahsari Marsuki</i>	
Application of YOLO v9 Model for Smart Waste Object Detection in Automated Sorting Systems	66
<i>Novi Ayu Vatmawati, Villa Nanda Permata, Muhammad Azmi, Gita Siti Nurhaliza, Harfan Hyan Ryanu</i> <i>Levy Olivia Nur</i>	
A Novel Approach to Optimize Genetic Disorder Prediction with Cascading Hierarchical Method	72
<i>Paul Calvin, Katarina Prisca Rijanto, Michael Kristianto, Ivan Sebastian Edbert</i>	
Detecting Evergreen Articles: Comparing Word Embeddings for Hybrid Bidirectional GRU and LSTM Model on Indonesian News Portal	78
<i>Adhelio Reyhandro, Ahmad Faza</i>	

Technical Analysis and Regulation of GSO Satellite Coordination on Ku-Band Frequency in Indonesia: Case Study of BRIsat and JSat-1C Satellites	84
<i>Michelle Octavia Yolanda Sari, Meiditomo Sutyarjoko, Nachwan Mufti Adriansyah</i>	
Detecting AI-Generated Anime Images Using Hybrid CNN-SVM: A Comparative Study of MobileNetV3 and ResNet50	90
<i>Leonardo, Friska Natalia</i>	
Implementation of PID Controllers in Microstrip Ultra-Wideband Antennas for Off-grid Applications	95
<i>Fredelino A. Galleto, M Aaron Don, N Arthur Michael, J Cecilia Angeline, R Jalen Andre S John Carlo Theo</i>	
Web-Based Distribution Transformer Load Monitoring System Design	101
<i>Wendell L. Gonzales, Stephenn L. Rabano, Roy G. Maranan, Carolyn D. Matira, Kristine C. Tablo Larilyn L. Ilao, Darwin M. Tiquio, Jei Q. Pastrana</i>	
The Influence of Blockchain in Online Games Innovation: TAM Approach	107
<i>Rudy Tjahyadi, Huandika Ekaputra</i>	
Development of Real-Time Data Acquisition Device for Monitoring Torque and RPM of Picohydro-Scale Savonius Water Turbine	113
<i>Rinasa Agistya Anugrah, Sanupal Muzamil</i>	
Coverage and Capacity Analysis of 5G 700 MHz New Radio Deployment for Dense Urban Scenario	119
<i>Farah Hanifah, Muhammad Imam Nashiruddin, Sofia Naning Hertiana</i>	
Object Identification for Sequence Diagram based on Use Case Scenario using Text Semantic: Case Study of IdVar4CL Artefact	125
<i>Moch. Alif Rachmanda, Yudi Priyadi, M. Faris Fathoni</i>	
Design and Implementation of a 2-DOF Manipulator Based on Inverse Kinematics for Agricultural Robotic Competition	131
<i>Muhamad Yusvin Mustar, Bintang Surya Tryatmojo, d Dian Ramadhan, Refi Febrian, Kunnu Purwanto Rahmat Fauzi Siregar</i>	
Design of Proportional Control-Based Vision System for Autonomous Mobile Robot in The ABU Robocon 2024 Contest	137
<i>Muhamad Yusvin Mustar, Satria Giri Kusuma, Bintang Surya Tryatmojo, Yudha Kurnia Mauliddina Putra Rama Okta Wiyagi, Rahmat Fauzi Siregar</i>	
Blockchain in E-Commerce Understanding Its Role Benefits and Challenges	143
<i>Winston Glenn Darmawan, Jonathan Djoko, Devan Yolian, Said Achmad, Rhio Sutoyo</i>	
Performance Analysis Resource Allocation with Waterfilling Power Control Scheme using Genetic Algorithm for Device-to-Device Communication	149
<i>Fawwaz Ido Adi Pratama, Budi Prasetya, Rudzidatul Akmam Dziyauddin, Nasrullah Armi</i>	
AprilTag-Guided Autonomous Precision Landing System for UAV-Quadcopter Using HuskyLens AI Camera	155
<i>Rama Okta Wiyagi, Bintang Surya Tryatmojo, Syaiban Al Basith Hafiefmulanzuhud Triherjuna Gian Handoko, M. Riadi Arya Hasani, Muhamad Yusvin Mustar</i>	
Implementation of Convolutional Neural Network with PERCLOS and Eye Aspect Ratio Methods for Early Detection of Computer Vision Syndrome	161
<i>Aditya Septian Arya Nugraha, Faqih Hamami, Ahmad Musnansyah</i>	

Automatic Microsleep Detection System Based on Eye Aspect Ratio Images	167
<i>Farah Diska Vellayati, Yessi Jusman, Muhammad Risqi Nurrahman, Erika Loniza, Kurnia Chairunnisa</i>	
Local Network Security Evaluation Trial on AVARO CT01 Smart Camera Applied to Smart Home Infrastructure	173
<i>Tigor Abraham Nuartha, Mochammad Haldi Widiyanto, Aaron Kenny Rijadi</i>	
Design and Implementation of a Behavior-Based Navigation and Obstacle Avoidance System for Quadrotor UAVs in Indoor Environments Using RPLIDAR Sensor	179
<i>Muhamad Yusvin Mustar, Bintang Surya Tryatmojo, Rifqi Affan Ghifari, Muhammad Hisyam Muhammad Afif Fawwaz Rizqullah, Sri Wahyuni</i>	
Efficient Combinatorial Search for Personalized Keto, Vegan, and Gluten-Free Diets via Hybrid Backtracking-Branch and Bound	185
<i>Rafael Julio Suseno, Nurwahyu Alamsyah, Jap Robertus Kurniawan Setiabudi, Kevin Matthew Siregar Adri Gabriel Sooi, Benedictus Erlangga, Minarni Wartiningsih, Agustinus Bimo Gumelar, Paul L Tahalele</i>	
Enhancing IT Governance in Indonesian Banking Using COBIT 5 Maturity Assessment for WebBased Automated Teller Machine Monitoring Systems	191
<i>Nurwahyu Alamsyah, Hanafi Sulaiman, Lukman Junaedi, Philipus Suryo Subandoro, Devi Dwi Purwanto Peter Rhatodirdjo Angka, Agustinus Bimo Gumelar, Ageng Salmanarrizqie, Adri Gabriel Sooi</i>	
Classification of Human Profiling Based on Facial Expressions Using the ResNet 50 and MobileNet Methods	197
<i>Silviana Chandra Carera, Slamet Riyadi, Chayadi Oktomy Noto Susanto, Qodri Aziz, Khairun Nisa</i>	
Automatic Film Viewer with Dimension Adjustment Control For Illumination	203
<i>Hanifah Rahmi Fajrin, Muhammad Mei Nando Gunawan, Susilo Ari Wibowo, Putri Rachmawati, Satriardi</i>	
Implementing Blockchain for Digital Land Certificates: Challenges and Opportunities	208
<i>Aqeela Noor Raisha, Huandika Ekaputra, Rudy Tjahyadi</i>	
Enhancing Multi-Layer Perceptron with Bayesian Optimization for Coffee Leaf Disease Classification	214
<i>Andrian Sah, Lukman Azhari, Mohammad Imam Shalahudin, Rohmat Indra Borman, Yessi Jusman</i>	
Classification of Normal and Lenke-Type Scoliosis Spine X-rays Using GLCM and K-Nearest Neighbors	220
<i>Anna Nur Nazilah Chamim, Hasimah Ali, Yessi Jusman, Ahmad Hadif Zaidin Bin Samsudin Siti Nurul Aqmariah Binti Kanafiah, Mohd Imran Yusof</i>	
Performance Comparison of ResNet50 and CNN-LSTM in Concrete Classification	226
<i>Muhammad Ihksan, Mahmud Isnani, Dede Fauzi, Hakas Prayuda</i>	
A Cake Recommendation System Using the Collaborative Filtering Method	232
<i>Arfiani Nur Khusna, Nur Rochmah Dyah Puji Astuti, Alfisyandi Juniardi</i>	
Predicting Netflix Show Success: A Sentiment Analysis Approach Using BERT	238
<i>Audya Florencia, Christine Kosasih, Diana, Shania Priccilia</i>	
Securing Crowdfunding Platforms using Polygon Blockchain Technology	244
<i>Viddi Mardiansyah, Mochammad Haldi Widiyanto, Luhur Bayuaji, Rafi Johari Wilistianto</i>	
Web-Integrated Alphabet Recognition of Indonesian Sign Language Using Modified EfficientNet-B0	250
<i>Zul Indra, Evfi Mahdiyah, Roni Salambue, Tisha Melia, Haris Tri Saputra, Zaiful Bahri, Kesya Lantio Liling Angela, Yessi Jusman</i>	

An Examination of Factors Impacting SMEs Digital Technology System Utilization	256
<i>Michella Kezia Wijaya, Michelly Regina Wijaya, Muhammad Khairan Rafi Artodefito, Erwin Halim</i>	
An Irresistible Charm: How Short Videos Capture Attention and Win User's Heart	262
<i>Janelle Luana, Ibnu Tamiyah Firdaus, Chandra Victoria, Erwin Halim</i>	
Automatic Curtain Slider Based on Light Intensity to Improve Human Health and Circadian Rhythm	268
<i>Ezrela Fidelynn Surya Wibisana, Terence Cahyadi Pranoto, Nadhifa Aqmarina Putri Mochammad Haldi Widiyanto</i>	
Systematic Literature Review of Decentralized Finance (DeFi): Components, Opportunities, and Challenges	274
<i>Rudy Tjahyadi, Stefanus Abel Candra Putrano</i>	
Multiclass Classification of Red Onion Leaf Diseases Using a Simple CNN with UBLAF Image Enhancement	280
<i>Muh Arya, Zahir Zainuddin</i>	
Big Data Adoption in Public Sector Auditing: A Study of Indonesian Government Auditors	286
<i>Hafiez Sofyani, Rahmat Darmawan, Susilo Nur Aji Cokro Darsono, Nurwahyu Alamsyah Hosam Alden Riyadh</i>	
Transformer-Based Sentiment Classification of Indonesian Healthcare Reviews: A Comparative Analysis of mBERT and DistillIndoBERT	291
<i>Ricky Pratama Soehardy, Vivi Permata Sari, Alexander Agung Santoso Gunawan, Rilo Chandra Pradana Muhammad Amien Ibrahim</i>	
Implementation of Random Forest Algorithm for Predicting Customer Churn in Fiber to the Home Services	297
<i>Amalia Audah, Faqih Hamami, Riska Yanu Fa'Rifah</i>	
Comparative Performance Analysis of Firebase Realtime Database and Supabase Using Multi-Method Testing Approaches	303
<i>Ahmad Meijlan Yasir, Tri Andi, Muhammad Abdul Haq, Muchamad Rizqy Nugraha, Marzuki Sinambela Tonny Wahyu Aji, Yobel Eliezer Mahardika, Aviv Maghridlo</i>	
Ultraviolet Index Prediction Using A Machine Learning Approach	309
<i>Afif Izaaz, Chayadi Oktomy Noto Susanto, Soni Miftah Pratama, Benyamin Heryanto Rusanto Anton Widodo, Maulana Putra, Marzuki Sinambela, Laila Ma'Rifatul Azizah</i>	
A Low-Cost, Mobile System for Monitoring Solar Radiation	315
<i>Aviv Maghridlo, Dwijoko Purbohadi, Ahmad Meijlan Yasir, Tonny Wahyu Aji, Yobel Eliezer Mahardika Marzuki Sinambela, Tri Andi</i>	
Automating High Performance Computing Account Provisioning Using Python to Invoke Linux User Management Commands in an On-Premise Environment	321
<i>Miftahul Mustafirin, Ridi Ferdiana, Noor Akhmad Setiawan</i>	
Automatic Infusion Liquid Delivery Machine Equipped with Safety Sensor	327
<i>Muhammad Achsanul In'am, Noor Pratama Apriyanto, Nana Sutarna</i>	
Voltage Dips Mitigation due to Under Voltage Relay Trip in Data Center	333
<i>Riki Khomarudin, Rahmat Adiprasetya Al Hasibi</i>	

Integration of Spirometer and Spirometry Database Application	339
<i>Sigit Widadi, Irvan Eko Kris Maryanto, Aji Lingga Fachreza, Erika Loniza, Andika Wisnujati</i>	
Telecommunication-Enabled mHealth Intervention: Evaluating the Effect of a Medication Reminder App on Adherence Among Hypertensive Patients	344
<i>Fachri Argya Cahyadi, Mullah Muhammad Agwa, Muhammad Thesa Ghozali</i>	
Real-Time Recognition of ASL Alphabets Using MediaPipe Hand Landmarks on Raspberry Pi 5	349
<i>Erika Loniza, Hanifah Rahmi Fajrin, Usman Umar, Zulkarnay Bin Zakaria, Muhammad Dimas Adhitya Afif Pranaditya</i>	
Multi-Model Deep Learning Architecture for Cryptocurrency Forecasting: A Comparative Evaluation of CNN-LSTM, CNN-Bidirectional LSTM, and CNN-GRU	355
<i>Agung Mulyo Widodo, Andika Wisnujati, M.F. Arrozi Adhikara, Nur Endah Rakhmawati, Hojjat Baghban</i>	
Artificial Intelligence-Based Decision Support System for White Feces Disease Management in Shrimp Aquaculture	361
<i>Atika Dwi Seftiany, Muhammad Akbar Aprianur, Alya Dini Budiarti, Elvira Sukma Wahyuni Suatmi Murnani</i>	
Machine Learning-Powered AI Chatbots in Pharmacy Practices: A Survey of Techniques, Applications, and Future Directions	367
<i>Salwa Aurelia Putri Dasirin, Anita Agustina Styawan, Muhammad Thesa Ghozali</i>	
Combining Object Detection and Geometric Analysis for Egg Dimension Estimation in Smart Farming	373
<i>Hasan Zidni, Karisma Trinanda Putra, Nor Salwa Damanhuri, Sarwo Pranoto, Deri Aditya Romadhon Rustam Asnawi</i>	
Concrete Crack Identification Through Hu Moment Shape Analysis and K-Nearest Neighbors Models	378
<i>Yessi Jusman, Ahmad Zaki, Ahmad Firdaus, Agil Priambada</i>	
Vehicle Routing Problems: From Deterministic Models to Stochastic Solutions	383
<i>Teddy Nurcahyadi, Muhammad Bagas Aji Samputra</i>	
IoT-Based Smart Irrigation System for Aglaonema Cultivation Using Soil Temperature and Humidity Monitoring via Antares Platform	389
<i>Muhammad Dimas Arizki, Yudhi Ardiyanto, Karisma Trinanda Putra</i>	
Experimental Testing of IEEE 802.11ah Wi-Fi HaLow Hardware in LOS and NLOS Scenarios for Surveillance Applications	395
<i>Muhammad Andi Hakim, Toha Ardi Nugraha, Tony K. Hariadi, Fikri Nizar Gustiyana Erika Lety Istikhomah Puspita Sari, I Ketut Agung Enriko</i>	
Implementation of Deep Learning for Breast Cancer Detection: A Systematic Literature Review	401
<i>Slamet Riyadi, Ika Tania Chairani, Tony K. Hariadi, Annisa Divayu Andriyani, Nasy'An Taufiq Al-Ghifari</i>	
AI Chatbot To Check Order Status Via Telegram With N8N Workflow Automation	407
<i>Jonathan Vieri Hartono, Hadi Syahril</i>	
LoRaWAN-Based Smart Meter for Enhancing Energy Audits: Technical Recommendation	413
<i>Erika Lety Istikhomah Puspita Sari, Muhammad Ary Murti, Suryo Adhi Wibowo, I Ketut Agung Enriko Widyasmoro</i>	
Development of a Wearable IoT-LoRaWAN Prototype for Continuous Patient Telemonitoring	419
<i>Nur Hayati, Rayhan Jatrahoma, Muhamad Yusvin Mustar, Willy Nasrullah, Magfirawaty, Berli Kamiel</i>	

Three-Layer Multi-Objective VRP Solver: Modified AGE-MOEA-II, Greedy Split Delivery, and 2-opt	424
<i>Erwin Nugroho, Abba Suganda Girsang</i>	
Climate Feature Impact on Rainfall Prediction Using Recurrent Neural Networks: Comparative Analysis of AUSMI and ENSO Predictors in Central	430
<i>Hanifullah Hafidz Arrizal, Laila Ma'Rifatul Azizah, Marzuki Sinambela, Adi Widiatmoko Wastumirad Nardi, Chayadi Oktomy Noto Susanto</i>	
Analyzing the Influence of Twitter Sentiment on Stock Price: Case Study of PT Unilever Indonesia	436
<i>Rizka Fadhilah, Dita Pramesti, Faqih Hamami</i>	
Prototype Development of a LoRaWAN-Enabled Container Security Monitoring System	442
<i>Nur Hayati, Rahmat Dani, Kunnu Purwanto, Eka Annas Solichin, Mosiur Rahaman, Sadr Lufti Mufreni</i>	
A Web-Based Ticketing System for Traffic Violations Using YOLO and OCR for Real-Time Detection	448
<i>Avicena Naufaldo, Hanif Fakhurroja, Dita Pramesti</i>	
Analyzing the Relationship Between Air Quality and Public Sentiment in South Tangerang	454
<i>Ilma Hamala Nur Faiza, Dita Pramesti, Hanif Fakhurroja</i>	
Design and Implementation of Autonomous Fire Suppression System with AI-Guided Aiming Sprinklers and Evacuation Guidance for Smart Building Applications	460
<i>Aditya Rizki Ramadhan, Widyasmoro, Muhammad Yudistira Berliandhi, Arief Diastyanto</i>	
Development of Intelligent Fire Detection System Using Multi-Sensor Verification and Machine Learning-Based Visual Camera Integration for Multi-Floor Building Applications	466
<i>B Muhammad Yudistira, S. T. Widyasmoro, Aditya Rizki Ramadhan, Arief Diastyanto Muhammad</i>	
Real-Time Monitoring of Ocean Wave Parameters and Surface Currents Using an IoT-Based Autonomous Surface Vessel	472
<i>Tonny Wahyu Aji, Muhammad Abdul Haq, Nelly Florida Riama, Dimas Aditya Wiranata Antonius Kuku Prasetyaji, Anton Widodo, Yobel Eliezer Mahardika, Marzuki Sinambela Ahmad Meijlan Yasir</i>	
Tourist Interest and Air Quality Sentiment: A Support Vector Machine Classifier and Non-Parametric Approach	478
<i>Zahra Hafizhah Mutmainnah, Dita Pramesti, Hanif Fakhurroja</i>	
Environmental Remote Sensing with Lightweight Edge Server: A Low-Cost River Depth Monitoring System via Embedded Web Interface	484
<i>Karisma Trinanda Putra, Puji Harsanto, Sarwo Pranoto, Jazaul Ikhsan, Arief Rahayu Agusttya Wily Nasrullah</i>	
Designing and Implementing a Trustless E-Commerce System with Blockchain-Integrated NFT for Product Verification	490
<i>Prayitno, Eko Prasetyo, Dwi Krisnandi, Maulana Arya Yoga Juliansyah, Tri Raharjo Yudantoro</i>	
Smart Health and Safety: Real-Time IoT Solution for Radiation Monitoring Using ESP32 and Cloud Services	496
<i>Noor Pratama Apriyanto, Haneef Nouval Alannibras Humaidi, Muhammad Achsanul In'Am Irvan Eko Kris Maryanto, Afif Pranaditya, Muhammad Rizky Riyadi</i>	
Photovoltaic Panel Design and Simulation for Agricultural Irrigation	502
<i>Bima Soma Hadi, Faaris Mujaahid, Sanupal Muzamil</i>	

Comparative Clustering of Earthquake Data in Central Java Using DBSCAN, HDBSCAN, STDBSCAN, and Fuzzy C-Means	508
<i>Irma Kurniawati, M. Aryono Adhi, Supriadi, Sulhadi, Hanifullah Hafidz Arriza, Marzuki Sinambela</i>	
Design of Automatic Sorting Trash Bin for Organic, Inorganic, and Metal Waste	514
<i>Tony K. Hariadi, Bagas Permadi, Kunnu Purwanto, M. Didik R. Wahyudi</i>	
Mel-Spectrogram Feature Extraction for Raw Acoustic Classification of Electric Motor Performance	519
<i>Faaris Mujaahid, Min Fu Hsieh, Thorikul Huda, Jamaaluddin, Muhammad Al Mahdi Muhammad Yusvin Mustar</i>	