2025 8th International Conference on Information and Computer Technologies (ICICT 2025)

Hawaii-Hilo, Hawaii, USA
14-16 March 2025

IEEE Catalog Number: CFP25RUA-POD
ISBN: 979-8-3315-0519-6

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:	CFP25RUA-POD
ISBN (Print-On-Demand):	979-8-3315-0519-6
ISBN (Online):	979-8-3315-0518-9
ISSN:	2769-4550

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

2025 8th International Conference on Information and Computer Technologies (ICICT)

ICICT 2025

Table of Contents

Preface ..... **xvi**
Organizing Committee ..... **xvii**

Software Design and Data Analysis

Quality Attributes for Cyber-Physical Systems and Merit Criteria for their Modeling Tools 1
Armin Moin (University of Colorado, USA), Atta Badii (University of Reading, United Kingdom), Fatma Bozyigit (University of Antwerp and Flanders Make, Belgium), and Moharram Challenger (University of Antwerp and Flanders Make, Belgium)

Effect of Pipelining on Resource-Aware Application-Level Checkpointing System for Malleable MPI Applications 6
Jophin John (Technical University of Munich, Germany) and Michael Gerndt (Technical University of Munich, Germany)

Intelligent Virtual Advisor for Software Development 14
Dana Warmsley (HRL Laboratories, USA), Aidan Barbieux (Independent Researcher, USA), Sasha Strelnikoff (Independent Researcher, USA), Mia Levy (HRL Laboratories, USA), Jocelyn Rego (HRL Laboratories, USA), Evelyn Kim (HRL Laboratories, USA), Paolo Giusto (General Motors, USA), Robert Genslak (General Motors, USA), and Lisa Begum (General Motors, USA)

Linking Abstract Digital Twin Data to 3D Models: A Configurable Approach for Real-Time Adaptation 20
Daniel Eckertz (Fraunhofer Institute for Mechatronic Systems Design IEM, Germany), Mattes Sander (Fraunhofer Institute for Mechatronic Systems Design IEM, Germany), Omar Masroor (Aerosoft GmbH, Germany), and Roman Dumitrescu (Paderborn University, Germany)

A Provenance-Centric Approach to Code Smell Reduction using Human-in-Loop Approach 27
Fazlullah Khan (Australian Institute of Higher Education, Australia), Ryan Alturki (Umm Al-Qura University, Saudi Arabia), Nabeela Awan (Abdul Wali khan University, Pakistan), and Ateeq ur Rehman (Staffordshire University, UK)

Homare: Platform Software for Aggregating Embedded Systems on Multi-Core Processor 35
Kanta Okugawa (Ritsumeikan University, Japan) and Koichi Mouri (Ritsumeikan University, Japan)

Software and Information Security

Single Bit Randomness Leakage: The Vulnerability in Post-Quantum Cryptography Standard CRYSTALS-Dilithium 43
Bingli Liu (Beijing Institute of Technology, China), Jingqi Zhang (Beijing Institute of Technology, China), and An Wang (Beijing Institute of Technology, China)

Robust Password Security: A Method in Preventing Guessing Attacks and Authenticating Users..... 49
Tonmoy Ghosh (Daffodil International University, Bangladesh), Md Mehedi Hasan (Southeast University, Bangladesh), Charan Gudla (Mississippi State University, USA), Md Shohel Rana (University of Massachusetts Dartmouth, USA), and Feroz Ahmed (Prediction 3D Technologies, USA)

Adaptive Password Policies: A New Paradigm for Cyber Resilience in Modern Threat Landscape.... 55
Tonmoy Ghosh (Daffodil International University, Bangladesh), Charan Gudla (Mississippi State University, USA), Feroz Ahmed (Prediction 3D Technologies, USA), Md Shohel Rana (University of Massachusetts Dartmouth, USA), and Md Mehedi Hasan (Southeast University, Bangladesh)

A Machine Learning-Based Framework for Malicious URL Detection in Cybersecurity 61
Tanjim Mahmud (Rangamati Science and Technology University, Bangladesh), G.M. Sakhawat Hossain (Rangamati Science and Technology University, Bangladesh), Md. Hasan Ali (Rangamati Science and Technology University, Bangladesh), Tanvir Hasan (Rangamati Science and Technology University, Bangladesh), Md. Faisal Bin Abdul Aziz (Comilla University, Bangladesh), Mohammad Tarek Aziz (Chittagong University of Engineering and Technology, Bangladesh), Mohammad Shahadat Hossain (University of Chittagong, Bangladesh), and Karl Andersson (Luleå University of Technology, Sweden)

Harnessing BERT for Advanced Email Filtering in Cybersecurity 66
Avishek Majumder (Port City International University, Bangladesh), Tanjim Mahmud (Rangamati Science and Technology University, Bangladesh), Tikle Barua (Port City International University, Bangladesh), Nusratul Jannat (Chittagong University of Engineering and Technology, Bangladesh), Md. Faisal Bin Abdul Aziz (Comilla University, Bangladesh), Dilshad Islam (Chattogram Veterinary and Animal Sciences University, Bangladesh), Rishita Chakma (Rangamati Science and Technology University, Bangladesh), Mohammad Shahadat Hossain (University of Chittagong, Bangladesh), and Karl Andersson (Luleå University of Technology, Sweden)

Dynamic Secret Injection for Microservices in the Cloud 72
Advait Patel (IEEE Senior Member), Ravi Laudya (IEEE Senior Member), Hariharan Ragothaman (Advanced Micro Devices (AMD)), Saai Krishnan Udayakumar (Salesforce, Inc.), Pravin Pandey (IEEE Senior Member), and Adit Sheth (IEEE Senior Member)

Leveraging Generative AI for Proactive Cybersecurity Threat Detection in Cloud Environments 80
Advait Patel (IEEE Senior Member), Ram Chandra Sachan (IEEE Senior Member), Hariharan Ragothaman (Advanced Micro Devices (AMD)), Adit Sheth (IEEE Member), Pravin Pandey (IEEE senior member), and Saai Krishnan Udayakumar (Salesforce, Inc.)

VulMDS: Precise Clone Vulnerability Detection via Multi-Dimensional Slicing 86
Shirun Liu (Chinese Academy of Sciences, China; University of Chinese Academy of Sciences, China), Aimin Yu (Chinese Academy of Sciences, China; University of Chinese Academy of Sciences, China), and Zhengkai Qin (Chinese Academy of Sciences, China; University of Chinese Academy of Sciences, China)

Machine Learning Models and Intelligent Computing

Enhancing Architecture Frameworks by Including Modern Stakeholders and their Views/Viewpoints 92
Armin Moin (University of Colorado, USA), Atta Badii (University of Reading, United Kingdom), Stephan Günnemann (Technical University of Munich, Germany), and Moharram Challenger (University of Antwerp and Flanders Make, Belgium)

Unsupervised Federated Learning for Face Recognition in Decentralized Environments 101
Enoch Solomon (Virginia State University, Virginia)

Enhancing IoT Security through Advanced Machine Learning Models for Anomaly Detection 107
Rahat Bhatia (Eastern Washington University, USA), Breeanna Lang (Eastern Washington University, USA), and Sanmeet Kaur (Eastern Washington University, USA)

Vigilis: A Time-Distributed CNN-ConvLSTM Model for Real-Time Shoplifting Detection in Uncontrolled Retail Environments 112
Sahil Verma (mokSa.ai, USA), Kranthi Mottu (mokSa.ai, USA), G Subrahmanya VRK Rao (mokSa.ai, USA), and Nikhil Teja Kolli (mokSa.ai, USA)

SmSeLib: Smart & Secure Libraries - Navigating the Intersection of Machine Learning and Artificial Intelligence 118
Irin Sultana (Emporia State University, USA), Syed Mustavi Maheen (Emporia State University, USA), Asura Akter Sunna (Emporia State University, USA), and Naresh Kshetri (Rochester Institute of Technology, USA)

Advancing Heart Failure Prediction: A Comparative Study of Traditional Machine Learning, Neural Networks, and Stacking Generative AI Models 124
Howard H. Nguyen (Harrisburg University, USA), Maria Vaida (Harrisburg University, USA), Kevin Purcell (Harrisburg University, USA), Kevin Huggins (Harrisburg University, USA), Srikar Bellur (Harrisburg University, USA), and Roozbeh Sadeghian (Harrisburg University, USA)

Advancing Water Infrastructure Maintenance: Integration of CNN, YOLOv5, and Faster R-CNN for Accurate Water Pipe Defect Localization and Classification 134
Chu Fu (National University, Philippines) and Mideth B. Abisado (National University, Philippines)

Hybrid Convolutional Neural Network with Transfer Learning and MobileNetV2 for Advanced Multi-Class PCB Defect Detection 140
Dajian Wan (National University, Philippines) and Mideth B. Abisado (National University, Philippines)

A Multi-Source Domain Unsupervised Multi-Scale Convolution Attention Model for Bearing Fault Diagnosis 144
Chunming Hou (University of Chinese Academy of Sciences, China) and Liaomo Zheng (University of Chinese Academy of Sciences, China)

Deep Learning Theory and Engineering Applications

A Deep Learning Approach for Event-Driven Duplicate Detection 151
Christian Stippel (TU Wien, Austria), Christian Pratellesi (TU Wien, Austria), Benjamin Schwendinger (Fraunhofer Austria Research GmbH, Austria), and Ralph Hoch (TU Wien, Austria)

PLB-Net: A Multi-Scale Attention-Based Network for Binocular Depth Estimation with Partial Labels 157
Yuqi Song (University of Southern Maine, Maine), Xin Zhang (University of Southern Maine, Maine), and Forest Ma (University of Southern Maine, Maine)

Fault Detection in AHUs using Deep Learning and Isolation Forests for Semi-Labeled Data 167
Samaneh Nadali (ADF Technologies Sdn.Bhd., Malaysia) and Tsi Hao Yong (ADF Technologies Sdn.Bhd., Malaysia)

Deepfake Detection for Enhanced Security in Workplace Environments using Deep Learning Techniques 173
Md Asaduzzaman (Daffodil International University, Bangladesh), Md Maruf Hassan (Southeast University, Bangladesh; Washington University of Science & Technology, USA), and Touhid Bhuiyan (Washington University of Science & Technology, USA)

Deep Learning Approach for Realistic Traffic Video Changes Across Lighting and Weather Conditions 180
Md Shadab Alam (Eindhoven University of Technology, The Netherlands), Sagar Hitendra Parmar (Amazon, India), Marieke H. Martens (Eindhoven University of Technology, The Netherlands), and Pavlo Bazilinskyy (Eindhoven University of Technology, The Netherlands)

Multimodal Information Fusion and Information Retrieval

Multimodal Retrieval and Fusion Framework (MRaFF) 186
Hailemariam Mehari Yohannes (Rakuten Mobile Inc., Japan), Yaqub Mahmoud (Rakuten Mobile Inc., Japan), Mohammed Nazeeruddin (Rakuten Mobile Inc., Japan), and Chaubey Dhananjay (Rakuten Mobile Inc., Japan)

Systematic Review of Large Language Models and Future Directions 192
Enoch Solomon (Virginia State University, Virginia), Abraham Woubie (AMD Silo AI, Finland), and Bernabas Solomon Emiru (Rift Valley University, Ethiopia)

Lightweight Relevance Grader in RAG 198
Taehee Jeong (San Jose State University, USA)

Unique Art of Hiding and Recovering Secret Information from Digital Files 204
Akashdeep Bhardwaj (University of Petroleum and Energy Studies (UPES), India) and Shawon Rahman (University of Hawaii-Hilo, USA)

The Evolution of the Enterprise Architecture: An Analysis through a Bibliometric Methodology 212
Paulo Tomé (Instituto Politécnico de Viseu, Portugal)

Public Health in the Digital Era: Insights in the Lens of Bibliometric Analysis of Artificial Intelligence in Social Media for Health Monitoring 217
Mideth B. Abisado (National University, Philippines), Ramon L. Rodriguez (National University, Philippines), Rosauro E. Manuel (National University, Philippines), Marilen F. Pacis (National University, Philippines), Maria Luisa G. Bautista (National University, Philippines), Bernie S. Fabito (National University, Philippines), Mico C. Magtira (National University, Philippines), and Jean V. Malolos (National University, Philippines)

Advancing Amharic Information Retrieval: A Comparative Analysis of Traditional, Neural, and Transformer-Based Models 223
Tilahun Yeshambel (Addis Ababa University, Ethiopia), Moncef Garouani (Université Toulouse Capitole, France), Josiane Mothe (Universitté Toulouse, France), and Yaregal Assabie (Addis Ababa University, Ethiopia)

Natural Language Understanding and Processing Technology

A Study on the Influence of Opinion Leaders in Network Public Opinion of Public Emergencies in Universities Based on SNA 229
Zhang Jingjie (Hubei University of Medicine), Su Ran (Hubei University of Medicine), Zhu Bingke (Hubei University of Medicine), Guo Haomin (Hubei University of Medicine), Chen Weizhen (Hubei University of Medicine), Qin Jingjie (Hubei University of Medicine), and Liu Yongqi (Hubei University of Medicine)

A Whisper and BETO-Bert Based Web Application for Classification of Emergency Calls 236
Anthony Rojas (Peruvian University of Applied Sciences (UPC), Perú), Kevin Calcin (Peruvian University of Applied Sciences (UPC), Perú), and Pedro Castañeda (Peruvian University of Applied Sciences (UPC), Perú)

Hierarchical Logic-Driven Relational Learning for Knowledge Graph Completion 242
Yajian Zeng (University of Electronic Science and Technology of China, China), Xiaorong Hou (University of Electronic Science and Technology of China, China), Xinrui Wang (University of Electronic Science and Technology of China, China), and Junying Li (University of Electronic Science and Technology of China, China)

Innovative Negative Sampling and Natural Language Processing Approach for Optimizing Knowledge Point Recommendations in Personalized Learning 248
Juan Zhou (National University, Philippines; Yueyang Vocational Technical College, China) and Mideth B. Abisado (National University, Philippines)

Optimizing Developer Assignment with Language Model and Knowledge Graph 254
Márk Lajkó (University of Szeged, Hungary), Péter Sánta (University of Szeged, Hungary), Balázs Nagy (University of Szeged, Hungary), and László Vidács (University of Szeged, Hungary)

Research on Relationship Extraction Method Based on Medical Examination Reports 260
Hongrui Pu (Kunming University of Science and Technology, China), Dong He (Kunming University of Science and Technology, China), Jianfeng He (Kunming University of Science and Technology, China), and Hongjiang Zhang (The First People Hospital of Anning City, China)

Automated Essay Scoring for Japanese: The Effects of Continual Pre-Training on Domain-Specific Reference Data 265
Boago Okgetheng (Okayama University, Japan) and Koichi Takeuchi (Okayama University, Japan)

Emerging Networks and Network Security

Enhancing Federated Learning Security with Reputation-Based Phishing Defense 273
Aishwarya Singh (Pacific Coast Companies Inc., USA)

A Design and Implementation Method of 256-Order Quadrature Amplitude Modulation 283
Bao-tang Shan (Changping NCO School of Space Engineering University, China), Jin Lv (Changping NCO School of Space Engineering University, China), Po Wang (Changping NCO School of Space Engineering University, China), Xiao-hang Ren (Changping NCO School of Space Engineering University, China), Qiu-xuan Zhang (Changping NCO School of Space Engineering University, China), and Ming-kang Wang (Changping NCO School of Space Engineering University, China)

Is Zero Trust a Solution to Advanced Persistent Threat? 287
Ayankunle A. Taiwo (Senior Security Consultant & Researcher, USA)

Enhancing Congestion Control in TCP Networks: Geometrical and Physical Interpretations of Queue Dynamics for Random Early Detection 292
Nabhan Hamadneh (The Hashemite University, Jordan) and Bashar Alkhawaldeh (The Hashemite University, Jordan)

Security Access Control for Deep Gaussian Process Regression 299
Takayuki Nakachi (University of the Ryukyus, Japan) and Yitu Wang (North Minzu University, China)

The Digital Shift: Review and Landscape of e-Participation 304
Vicente A. Pitogo (Caraga State University Main Campus, Philippines), Rolyn C. Daguil (Caraga State University Main Campus, Philippines), Mark Phil B. Pacot (Caraga State University Main Campus, Philippines), Rozanne Tuesday G. Flores (Bukidnon State University, Philippines), Riski Zulkarnain (Universitas Mulia, Indonesia), and Richki Hardi (Universitas Mulia, Indonesia)

Modern Integrated Information System Design and Platform Construction

ShieldDroid Enterprise: A Comprehensive Security Framework to Protect Corporate Data on Personal Devices 310
Clementine Mamogale (University of Johannesburg, South Africa) and Noluntu Mpekoa (University of Johannesburg, South Africa)

Optimizing Software Development through Human Factors: A Cost-Benefit Analysis 319
Zara Shafiq (National University of Science and Technology, Pakistan), Yawar Abbas Bangash (Sunway University, Jalan Universiti, Malaysia; National University of Science and Technology, Pakistan), Nisar Ahmed (National University of Science and Technology, Pakistan), Waseem Iqbal (Sultan Qaboos University Muscat, Oman), and Saad Aslam (Sunway University, Jalan Universiti, Malaysia)

Efficient Visualization of 3D Urban Environments in the Metaverse by Integrating GIS and Unreal Engine 327
Charalampos Iordanidis (University of Macedonia, Greece) and Christos K. Georgiadis (University of Macedonia, Greece)

An Cross-Platform Real-Time Rendering Optimization Solution for WebAssembly Combined with Graphic APIs 333
Xudong Zhang (University of Chinese Academy of Sciences, China), Yue Liu (University of Chinese Academy of Sciences, China), Ledan Qin (University of Chinese Academy of Sciences, China), and Ningning Xie (University of Chinese Academy of Sciences, China)

Livestock Management Platform: An Agile Web-Based Agricultural Solution 338
Regina Ramos (Caraga State University, Philippines), Lordelie Darog (Caraga State University, Philippines), Salfer Ian Openiano (Caraga State University, Philippines), Vicente A. Pitogo (Caraga State University, Philippines), Cristopher C. Abalorio (Caraga State University, Philippines), and Jack Febrian Rusdi (Universitas Teknologi Bandung, Indonesia)

Optimization of Sports Field Reservations with Synthetic Grass in the City of Huancayo through a Mobile Application 344
Ronaldo Scott Velasque Vasquez (Continental University, Peru), Ronal Ayuque Alfonso (Continental University, Peru), Jorge Luis Huaman Gonzales (Continental University, Peru), and Jorge Martin Vega Rosales (Continental University, Peru)

MADC-ED: A Multimodal Approach for Dimensional Classification in Engineering Drawings 349
Hanlin Xu (Wuhan University of Technology, China), Zhenhua He (Wuhan University of Technology, China), Ning Xu (Wuhan University of Technology, China), and Lv Wu (Wuhan University of Technology, China)

Intelligent Data Management System and Decision Support Platform Construction

How to Build a Reliable Framework to Make Intelligent Decisions About Road Maintenance 355
Haoyu Sun (R&D Center of RoadMainT Co., Ltd., China), Xiaoming Yi (R&D Center of RoadMainT Co., Ltd., China), Zongjun Pan (R&D Center of RoadMainT Co., Ltd., China), Ning Cheng (R&D Center of RoadMainT Co., Ltd., China), Ping-Chun Shih (Computing College of Illinois Institute of Technology, USA), and Yuanhao Guo (R&D Center of RoadMainT Co., Ltd., China)

Generation of Thumbnail Images of Multimedia Data for Exchange via BLE 365
Tadashi Ogino (Meisei University, Japan)

Enhancing Road Safety in Long Tunnels through Virtual Reality-Based Visual Measures 371
Jenssen Gunnar (SINTEF, Norway), Moscoso Claudia (SINTEF, Norway), and Skjermo Jo (SINTEF, Norway)

Leveraging Fine-Tuned Large Language Models for Multilingual Agricultural Chatbots to Improve Farmer Decision-Making 379
Cedric Nyagatare (Whitman College, USA) and Parteek Kumar (Washington State University, USA)

Artificial Intelligence and Applications in Digital Information Systems

Leveraging Artificial Intelligence Approaches for Smart Farming 384
Enoch Solomon (Virginia State University, Virginia), Abraham Woubie (AMD Silo AI, Finland), Eden Solomon Awulachew (Rift Valley University, Ethiopia), and Eyasu Getahun Chekole (Singapore University of Technology and Design, Singapore)

Investigating the Impact of Context on Zero-Shot Entity Resolution: Applications in Chronic Lower Back Pain 390
Damon Lin (California Polytechnic State University, USA), Cooper Koenig (California Polytechnic State University, USA), Samuel Kaplan (California Polytechnic State University, USA), Madeline Bittner (California Polytechnic State University, USA), Mayumi Paraiso (California Polytechnic State University, USA), Nasreen Buhn (California Polytechnic State University, USA), Emily Stokes (California Polytechnic State University, USA), Iris Ho (California Polytechnic State University, USA), Jeffrey Lotz (University of California San Francisco, USA), Jean Davidson (California Polytechnic State University, USA), and Paul Anderson (California Polytechnic State University, USA)

Enhancing Power Quality in Smart Grids Through the Application of Artificial Intelligence: A Comprehensive Analysis and Case Studies 397
Malusi Sibiya (University of South Africa, South Africa), Excellence Mutetwa Kuyumani (Walter Sisulu University, South Africa), and Ayokunle Olalekan Ige (University of South Africa, Johannesburg)

Enhancing Dementia Care Skills in Healthcare Students through Gamified VR: A Pilot Study 405
Yi Joy Li (Kennesaw State University, USA), Debbie Blay (Kennesaw State University, USA), Venkata Palagundla (Kennesaw State University, USA), and Modupe Akintomide (Kennesaw State University, USA)

Transforming Scholarship Selection: A Review of AI-Driven Matching Algorithms and Transformer Models 411
Josie C. Calfoforo (National University, Philippines), Rodolfo C. Raga (Jose Rizal University, Philippines), and Mideth B. Abisado (National University, Philippines)

The Evolution of Pricing Models in the AI Age: A Comparative Analysis of Time-Based and Results-Based Approaches 417
Ioannis Patias (University of Sofia "St. Kliment Ohridski", Bulgaria)

Multimodal Health Monitoring and Diagnosis Systems based on Artificial Intelligence

Advanced Cloud Framework for Lung Cancer Diagnosis and Severity Evaluation in Deep Learning 423
Rajkumar Maharaju (National Institute of Technology Warangal, India) and Rama Valupadasu (National Institute of Technology Warangal, India)

A Distributed Data Infrastructure for Open Bioinformatics Research 429
Dali Wang (University of Tennessee, USA), Mung-shu Shen (University of Tennessee, USA), Eric Wang (North Carolina State University, USA), Feng Chen (University of Tennessee, USA), and Weijiao Wang (University of Tennessee, USA)

Cognitive Fatigue Detection using Photoplethysmography (PPG) and Reaction Time Data 435
Anhar Sami Mohammed (Missouri S&T, USA), Prajoy Podder (Missouri S&T, USA), Maciej Zawodniok (Missouri S&T, USA), and Cihan Dagli (Dept. of Missouri S&T, USA)

Enhancing ADHD Diagnostic Assessments with Virtual Reality Integrated with Biofeedback and Artificial Intelligence 442
Anmol Garg (Pennsylvania State University, United States), Sayed Mohsin Reza (Pennsylvania State University Harrisburg, United States), and Dara Babinski (Pennsylvania State University Hershey, United States)

Multi-Stage Auditory Anomaly Detection and Classification for Natural Gas Compressors 448
Xulong Zhang (Lamar University, TX) and Jing Zhang (Lamar University, TX)

Computer Vision and Image Processing Methods

Predicting Stenosis Severity of Coronary Arteries with Non-Contrast CT and MPR Images using Deep Neural Networks 453
Masaki Aono (Toyohashi University of Technology, Japan), Tetsuya Asakawa (Toyohashi University of Technology, Japan), Kazuki Shimizu (Toyohashi Heart Center, Japan), Masashi Hashimoto (Toyohashi Heart Center, Japan), Takeshi Miyaji (Toyohashi Heart Center, Japan), and Kei Nomura (Toyohashi Heart Center, Japan)

An Edge Detection with LSB and AES Encryption Based Image Steganography 461
Sheikh Thanbir Alam (University Malaysia Perlis, Malaysia; Bangladesh Army, Bangladesh), Munira Tabassum Mou (Daffodil International University, Bangladesh), Md Maruf Hassan (Southeast University, Bangladesh; Washington University of Science & Technology, USA), and Touhid Bhuiyan (Washington University of Science and Technology, USA)

An Enhanced Image Steganographic Algorithm Integrating 1-Bit LSB Based XOR Operations in the YCbCr Color Model with Canny Edge Detection 467
Sheikh Thanbir Alam (University Malaysia Perlis, Malaysia; Bangladesh Army, Bangladesh), Md Maruf Hassan (Southeast University, Bangladesh; Washington University of Science & Technology, USA), and Touhid Bhuiyan (Washington University of Science & Technology, USA)

3D Object Detection Algorithm with MixUp3D 473
Wangzhe Zou (HoHai University, China), Congning Lang (Nanjing University, China), and Hankun Chang (Xidian University, China)

MEKA: Multimodal External Knowledge Augmentation for Social Media Image Captioning 479
Madhumita Dash (Accrete AI, India), Tejas Pant (Accrete AI, India), and Himanshu Parganiha (Accrete AI, India)

Identification of Solid Waste Types to Optimize the Recycling Process through Deep Learning Techniques 486
Isaías Silva León (Universidad Técnica Particular de Loja, Ecuador) and Luis Barba-Guaman (Universidad Técnica Particular de Loja, Ecuador)

Triple-Stream SWIN Transformer Based Encoder-Decoder for Image Forgery Localization 492
Raghav Agarwal (Indian Institute of Information Technology Allahabad, India), Akanksha Kashyap (Indian Institute of Information Technology Allahabad, India), Himanshu Yadav (Indian Institute of Information Technology Allahabad, India), Himanshu Mathur (Indian Institute of Information Technology Allahabad, India), Bulla Rajesh (IIIT Sricity, India), and Mohammed Javed (Indian Institute of Information Technology Allahabad, India)

Advanced Mask-Wearing Detection for Safety Compliance in Public and High-Risk Environments 498
Zakaria Charouh (Giantlink, Morocco), Amal Ezzouhri (Sidi Mohammed Ben Abdellah University, Morocco), Mounir Ghogho (International University of Rabat, Morocco), and Zouhair Guennoun (Mohammed V University, Morocco)

Extraction of Chinese Medical Entity Attribute Values Based on Multi-Type Feature Fusion 504
Jinlian Du (Beijing University of Technology, China), Xiaolin Du (Beijing University of Technology, China), Zhenwei Lu (Beijing University of Technology, China), and Xiao Zhang (Beijing University of Technology, China)

Channel Distribution Distillation-Guided Advanced Lightweight Network for Referring Image Segmentation 511
Lingyun Zhao (Shandong University of Science and Technology, China), Huifang Sun (Shandong University of Science and Technology, China), Longfei Li (Shandong University of Science and Technology, China), Qihang Sun (Shandong University of Science and Technology, China), Nan Wang (Shandong University of Science and Technology, China), and Fangzheng Zhao (Shandong University of Science and Technology, China)

FMT:A Multimodal Pneumonia Detection Model Based on Stacking MOE Framework 517
Jingyu Xu (Northern Arizona University, U.S) and Yang Wang (Cluster BI Inc, Canada)

Author Index **523**