

2024 International Conference on Computer Engineering, Network, and Intelligent Multimedia (CENIM 2024)

**Surabaya, Indonesia
19-20 November 2024**



**IEEE Catalog Number: CFP24NIM-POD
ISBN: 979-8-3503-6881-9**

**Copyright © 2024 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:	CFP24NIM-POD
ISBN (Print-On-Demand):	979-8-3503-6881-9
ISBN (Online):	979-8-3503-6880-2

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 CONTENT

MESSAGES FROM GENERAL CHAIR	i
MESSAGE FROM HEAD OF COMPUTER ENGINEERING DEPARTMENT ITS	ii
ORGANIZING COMMITTEE	iii
TABLE OF CONTENT	vii
KEYNOTE LECTURES	xvi
Prof. Yasuhisa Hirata	xvii
Prof. Tri Arief Sardjono	xviii
Assoc. Prof. Azwirman Gusrialdi	xix
Prof. Diana Purwitasari	xx
General Schedule	xxii
CENIM 2024: TECHNICAL SESSION SCHEDULE & ABSTRACTS	xxv
Sentiment Analysis of Digital Customer Service Helpdesk Tickets: A Comparison Between BERT and SVM <i>Jayusman Jayusman and Riyanto Jayadi</i>	1
Predicting Flight Delays at Soekarno-Hatta Airport Using Machine Learning: A Comparative Analysis of Random Forest and Gradient Boosting with SMOTE <i>Ade Kusumasetya and Eka Miranda</i>	7
Impact Analysis of The Use of Artificial Intelligence with Self-Regulated Learning Theory on Student Academic Performance in Indonesia <i>Abdullah Billman and Surjandy Surjandy</i>	13
Machine Learning Application for Classification of Rice Varieties: A Systematic Literature Review <i>Yana Cahyana, Adi Setiawan, Irwan Sembiring, and Christine Dewi</i>	18

Hybrid Tuning for Parameters of Power System Stabilizer and Virtual Inertia Based on Super Conducting Magnetic Energy Storage using Gravitational Search Algorithm <i>Faizal Dian Pramudhita, Imam Robandi, Ardyono Priyadi, Mohamad Almas Prakasa, and Muhammad Ruswandi Djalal</i>	25
Handwritten Signature Recognition Using Siamese Neural Network <i>Yuliana Setiowati, Arna Fariza, and Muhamad Rifqi Luthfi Ramadhan</i>	31
Exploring Naive Bayes Variants for Classifying Emotions in e-Commerce Reviews <i>Yuni Yamasari, Natasha Isnaeni Raharko, Anita Qoiriah, Esther Irawati Setiawan, Wiyli Yustanti, and Ricky Eka Putra</i>	37
Fuzzy Disassembly Planning with Stimuli-activated Self-disassembly Workstations <i>Di Wang</i>	43
Internet Of Things: to Determine The Correlation Between People Occupancy And Energy Consumption In Buildings <i>I Ketut Agung Enriko, Fikri Nizar Gustiyana, Annisa Dwi Lestari, Ahmad Luthfi, Hedi Krishna, and Dandy Fabian</i>	50
Mental Health Assistance and Early Detection of Alzheimer and Parkinson diseases using Deep Learning <i>Muthusenthil Balasubramanian, Dhanakoti V, Jeyakani P, and B Aditya Bharathi</i>	56
Data Delicacies: Endemic Fish as New Dataset for Culinary Artificial Intelligence <i>Adri Gabriel Sooi, Santirianingrum Soebandhi, Maria Augustine Lopes Amaral, Anselmus Boy Baunsele, and Aryo Nugroho</i>	61
Improvement of Shortest Path Finding with A* Algorithm on Augmented Reality (AR) Indoor Navigation Application <i>Muhammad Shulhan Khairy, Septian Enggar Sukmana, Ely Setyo Astuti, Muhammad Unggul Pamenang, Berryl Radian Hamesha, and Rosi Latansa Salsabela</i>	67
SiJesi: Large Language Model Chatbot with Augmented Retrieval Approach Generation and Prompt Engineering <i>Happy Sandhiyadini Rosari, Giri Noto, Ray Novita Yasa, Nurul Qomariasih, and Rheva Anindya Wijayanti</i>	72
A Preliminary Study of Similarity Measure Implementation on Hybrid Memory-based Recommendation Model <i>Noor Ifada, Ahmad Farisul Haq, and Alief Akbar Purnama</i>	78
Smart Wheelchair Control Based on Spatial Features of Hand Gesture <i>Rasyedah Binti Mohd Othman and Eko Mulyanto Yuniarno</i>	85
Modified ResNet50 with Transfer Learning for Enhanced Epileptic Activity Detection Using EEG Data <i>Rieke Syochrani Zaef, Hendra Kusuma, and Tri Arief Sardjono</i>	91

Comparative Study of Non-Iterative Fine-Tuning Strategies in Mosquito Larvae Image Classification <i>I Putu Dody Lesmana, I Ketut Purnama, Mauridhi Hery Purnomo, Sri Subekti, Etik Rohmah, and Siti Fatimatuz Zahra</i>	98
An Optimized U-Net Encoder with VGG-16 and Additional Feature Block for Brain Tumor Segmentation on MRI ADC Images <i>Muhammad Fuad Alharis, I Ketut Purnama, Eko Mulyanto Yuniarno, and Heni Fatmawati</i>	104
Retrieval Augmented Generated for Earth Fault Simulation <i>Farid Cenreng, Rona Riantini, Supeno Mardi Susiki Nugroho, and Reza Fuad Rachmadi</i>	110
Measuring the Effects of Transfer Learning for CNN and Transformer based Network on Skin Disease Classification <i>Alif Aditya Wicaksono, I Ketut Purnama, and Reza Fuad Rachmadi</i>	116
Prediction of Zonal And Meridional Winds Using The Deep Transformer Model: Case Study at Juanda International Airport <i>Taufiq Hermawan, Reza Fuad Rachmadi, Mauridhi Hery Purnomo, Endarwin Endarwin, and Shanas Septy Prayuda</i>	120
Enhancing Student Academic Performance Through The Implementation of Dynamic Gamification in Educational Settings <i>Tiara Natasha Muliawan, Laura Angelica Wijaya, Lucinda Artahni, and Erwin Halim</i>	125
An Enhanced Course Scheduling System Using the Genetic Algorithm with Matrix-Based Representation Genes <i>Muhammad Afdal Abdallah, Ary Mazharuddin Shiddiqi, Rizky Januar Akbar, and Anindhita Dewabharata</i>	131
Software Input Correction in Data-Intensive Scalable Computing using DistilBERT <i>Jabalnur Jabalnur and Agus Budi Raharjo</i>	N/A
Analysis of Viral Spread of Pop Culture Based on the SEIR Model <i>Zhenye Xu</i>	142
CalcPal: Mobile Application to Comprehensively Screen and Provide Remedial Activities for Dyscalculia <i>Vihanga Gunasekare, Sankalpa Athukorala, Vimukthi Serasinghe, Lakindu De Zoysa, Samantha Thelijjagoda, and Jenny Krishara</i>	147
Sensor and Computer Vision-Based Wheelchair Navigation System For Detecting Obstacle And Tactile Paving <i>Fathin Hanum Al'alimah, Achmad Arifin, Norma Hermawan, Andra Risciawan, M. Lukman Hakim, and Nabila Alya Rahma</i>	154
Unveiling the Key Influencers: How Social Commerce Use Intention Shapes Purchase Decisions <i>Anderes Gui, Idris Gautama So, Nelly Nelly, Jerry Jonathan Chia, Ryan Ryan, and Wesley Brilliant Lay</i>	160

Artificial Intelligence Readiness and Adoption in Auditing <i>Anderes Gui, Imanuela Tuhenay, Nadine Shakira Rahma, Yuliana Lisanti, Veronica Veronica, and SITI ROHAIDA Mohamed zainal</i>	166
Add-Net: Leveraging Additive Attention Mechanism in U-Net Architecture for Precise Liver Tumor Segmentation <i>Abu Salam, Ika Novita Dewi, and Danang Wahyu Utomo</i>	172
A Systematic Literature Review of Audio Signal Processing Methods for Infant Cry Recognition and Interpretation <i>Nuk Ghurroh Setyoningrum, Ema Utami, Kusrini Kusrini, and Ferry Wahyu Wibowo</i>	178
Breast Thermal Images Classification into Three Classes using Statistical Approach and CNN-XGBoost <i>Muhammad Hafiz, Khairun Saddami, Essy Harnelly, and Roslidar Roslidar</i>	184
Benchmarking CNN Models for Malaria Cell Detection <i>Louis Oktovianus, Jessica Kiyan Tikkhaviro, and Simeon Yuda Prasetyo</i>	190
Ensemble CNN Models for Accurate Pneumonia Classification in Chest X-Ray Images <i>Muhamad Widiarto, Pulung Nurtantio Andono, Catur Supriyanto, Moch Arief Soeleman, and Adi Wijaya</i>	196
Modeling for Semantic Segmentation and Classification of Breast Thermograms Using MobileNetV3 and Boosted Tree <i>Fitra Riyanda, Roslidar Roslidar, Rusdha Muharar, and Muhammad Syamsu Rizal</i>	202
Digital Virtual Assistant Based on Expert Hybrid Medical Large Language Model <i>Junyi Chai, Zhang Wang, Jialing Shen, Leina Zheng, Zhengqi Pan, Tiejun Pan, and Yongqingyang Jin</i>	208
A QRS Complex Detection in Multi-lead ECG signals Based on Filtering and Standard Deviation Shift <i>Ahmed Toman Thahab, Samir Jasim Mohammed, and Ibraheem Abdullaa</i>	216
Digital Infant Scale with Fuzzy Decision Support for Growth Monitoring <i>Syania Fadhillah, Achmad Arifin, Nada Fitriyatul Hikmah, Eko Suprayitno, and Ni Luh Ayu Lista Lestarini</i>	222
Experimental Study of Electrical Wheelchair Usage Using Myoelectric Signals Control for User with Disability <i>Muhammad Rafli Ramadhani, Achmad Arifin, Fauzan Arrofiqi, Eko Suprayitno, Andra Risciawan, and M. Lukman Hakim</i>	228
Wearable Monopole Textile Antenna for IoT Application <i>Nurhayati Nurhayati, Nessa Nabila Uma, Maheshinta Yunia Farentina, Ratna Dwi Safitri, Agam Nizar Dwi Nur Fahmi, and Wa'il A. Godaymi Al-Tumah</i>	234
Design of Safety Drive Training System for Hearing-Impaired People <i>Dina Andini, Achmad Arifin, and Fauzan Arrofiqi</i>	238

Evaluation of the Impact of Mobile Cloud Gaming Technology on Accessibility and Quality of Player Experience <i>Feliks Sung, Varick Vanedick, Bakti Amirul Jabar, and Fredy Purnomo</i>	244
Gen Z Sentiment on the Implementation of Blockchain Technology in Video Games <i>Rafi Alfiandro Suharwiyono, Ignatius Farrell Raditya, Bakti Amirul Jabar, and Fredy Purnomo</i>	250
Enhancing Engagement: Assessing Usability and Scoring Model in The Road Safety Spot Hazard Game <i>Siti Salwa Salleh, Siti Zaharah Ishak, and Khyrina Airin Fariza Abu Samah</i>	256
The Impact of Gamification in Sport Application <i>Raymond Fernando, Riwang Vergianda, Marisa Karsen, and Samuel Xiao</i>	264
A Comparative Analysis of User Experience and Educational Outcomes in Math Memory Games <i>Nicholas Martin, Raffel Nathanael, Doni Jeriyanto, Eric Savero Hermawan, Janshen Fung, and Francisco Maruli Panggabean</i>	268
IoT Based Smart Trash Bank for Organic and Inorganic Trash Separation <i>Wahyul Amien Syafei, Grace E. Patricia, Eko Handoyo, Oky Nurhayati, Marina Pasaribu, and Reyhan Charistyandi</i>	276
Shallot Automated Fertilization and Irrigation Device Using Solar-Powered IoT Based on ESP-NOW and LoRa <i>Henning Titi Ciptaningtyas, Irzal Ahmad Sabilla, and Muhammad Farrel Abdillah</i>	282
Change Management Implementation on E-Government System Using PROSCI ADKAR with Control Standard of COBIT2019 and ITIL v4 <i>Henning Titi Ciptaningtyas, R. V. Hari Ginardi, Ariel Daffansyah Aliski, Diosdado Caronongan, and Marlina Santoso</i>	288
Sensor Placement Strategy for Contaminant Detection in Water Distribution Network Using Greedy Algorithm and Local Search Technique <i>Fadelis Sukya, Ary Mazharuddin Shiddiqi, Ervin Nurhayati, Mustafa Kamal, and Elshe Erviana Angely</i>	294
Enhancing Grid Resilience through Real-time Self-Healing: Integrating Python-PowerFactory-IoT with ESP32 <i>Agus Suwardono, Ardyono Priyadi, Rachmad Firdhaus Pujiantara, Firas Quthbi Sidqi, Sjamsjul Anam, and Vita Lystianingrum</i>	300
Fuzzy Logic-based Fall Detection System for Elderly using a Single Inertial Measurement Unit <i>Muhammad Ariq S., Raihan Aria Muhamad Noor, Alif Syihabudin Fawwaz S., Muhammad Adib Syamlan, Achmad Arifin, Josaphat Pramudijanto, and Fauzan Arrofiqi</i>	305

Prototype Approach Light Monitoring System Using Web-based LoRa Communications <i>Rika Ayu Wulandari, Haniah Mahmudah, and Rahardhita Sudibyo</i>	310
Mobile-Based Serious Game for Learning Facial Expression Recognition in Children with Autism Spectrum Disorder Using MobileNet Model <i>Sarah Hanifah Pontoh, Rizka Sholikah, Hatma Suryotrisongko, and Chatherine R Alimboyong</i>	316
Real-Time Pattern Recognition in Augmented Reality Application through the Integration of TensorFlow Lite and Unity <i>Dwi Mulyo, Hestiasari Rante, Sritrusta Sukaridhoto, and Cahyo Arissabarno</i>	322
Performance Analysis of Integrated GeoAI Using Multi-Layer Perceptron Based on Hyperparameter to Identify Landslide Prone Areas: A Case Study from West Bandung <i>Evita Intan Cahyaningtyas, Youllia Indrawaty Nurhasanah, and Hary Nugroho</i>	328
Air Temperature Prediction with LSTM and LSTM-GRU: A Two-Year Meteorological Data <i>Alfin Rianto Pangaribuan, Eko Mulyanto Yuniarno, and Reza Fuad Rachmadi</i>	333
Multi-Robot Navigation uses the Greedy Heuristic Algorithm Based on the ACO Algorithm <i>Ahmad Zaini, Hansen Ade Rioza, and Muhtadin Muhtadin</i>	338
Omnivision Calibration on Mobile Robot Using Machine Learning <i>Muhtadin Muhtadin, Azzam Wildan Maulana, Rudy Dikairono, and Ahmad Zaini</i>	347
Leveraging Virtual Reality to Bridge the Gap Between Traditional Fire Safety Training and Real-World Scenarios <i>Siska Arifiani, Retno Widyaningrum, Hadziq Fabroyir, Beryl Beryl, Shahnaaz Anisa Firdaus, and Fariz Dwika Kresnaldi</i>	355
Improvising E-Commerce Sentiment Analysis with Hybrid VADER-BERT Ensemble Model <i>Suchita Sharma and Nishith Desai</i>	361
An Affective Computing Electroencephalogram-based System with Machine Learning Algorithms <i>Israa Laith, Ali Sadeq Jalal, and Osama A. Awad</i>	369
Edge Detection and ORB Matching for Accurate Pedestrian Distance Estimation Using Stereovision <i>Oumayma Rachidi, Chafik Ed-dahmani, and Badr Bououlid Idrissi</i>	377
Autonomous Underwater Vehicle for Pipeline Following Using YOLOv8 Instance Segmentation and Robotic Operating System <i>Ronny Mardiyanto, Devy Kuswidiastuti, Muhammad Hasan Dzulfadli, and Yuda Apri Hermawan</i>	382

Sign Language Detection to Enhance Online Communication for Deaf and Mute Individuals through Deep Learning Models <i>Gladys Jessica Ruslim, Nicholas Matthew Salim, Ivan Sebastian Edbert, and Derwin Suhartono</i>	388
Machine Learning Approaches for Analyzing Bank Customer Complaints <i>Dustin Bijou Arasy, Shamgar Eugene T'sidkenu Widjaja, Ivan Sebastian Edbert, and Derwin Suhartono</i>	394
Implementation and Improvement of EfficientNetV2 Model with GRU to Classify White Blood Cell Types <i>Muhammad Risal Cahya Nugraha, Esti Suryani, and Wiharto Wiharto</i>	400
Comparison of ResNet-50 and EfficientNet-B0 Method for Classification of Indonesian Sign Language System (SIBI) Using Multi Background Dataset <i>Anik Nur Handayani, Teguh Andriyanto, Desi Fatkhi Azizah, Muhammad Zaki Wiryawan, and Harits Ar Rosyid</i>	406
An Enhanced Approach for Defect Detection: Implementing CNN Algorithm and Identifying Catastrophic Forgetting <i>Grace Adeline Kharisma, Putu Aryasatya Dharma Kenzhie, Henry Lucky, and Meiliana Meiliana</i>	412
Detection of Iron Corrosion in Concrete using 1D Convolution <i>Evan Kinanda Sutanty, Dion Hayu Fandiantoro, and Arief Kurniawan</i>	418
Attention-based spectral gain modifications applied to speech noise suppression <i>Huiting Yu, Rowell M Hernandez, and Anton Louise P. De Ocampo</i>	424
Indonesian Batik Pattern Recognition Using Siamese Network with Triplet Loss <i>Stephanie Anastasia Makmur, Fredy Sunjaya, Henry Lucky, and Meiliana Meiliana</i>	429
Design of Two-Way Indonesian Sign Language System based on Smart-Glove with Artificial Neural Network Classification Method <i>Veny Eka Nurfita Sari, Achmad Arifin, and Fauzan Arrofiqi</i>	436
Continuous Cuffless Non-Invasive Blood Pressure Detection from ECG and PPG Signals Using Artificial Neural Network <i>Aushaf Cintya Wanda, Muhammad Yazid, and Rachmad Setiawan</i>	442
Real Time Chest X-Ray Interpretation Applying Vision Transformer for Tuberculosis Detection <i>Muhammad Irhamsyah, Roslidar Roslidar, Yunidar Yunidar, M Al Lail Qadrillah, N Nasaruddin, Fitri Arnia, and Khairul Munadi</i>	448
COVID-19 Case Prediction in Indonesia Using Ensemble Machine Learning Techniques with Vaccinations <i>Egi Safitri, Rini Nurlistiani, and Ruki Fikri</i>	454

A Wireless ECG Monitoring System Based on 12-Lead ECG Signals <i>Yiji Li, Shihao Han, Jingze Ding, Zijian Zhou, Wenyao Li, Lifeng Lin, Shiliang Huang, and Bingli Jiao</i>	461
Application of HHT Algorithm to ECG QRS Detection <i>Bochen Chen, Dan Ye, Bo Jiang, Lifeng Lin, and Bingli Jiao</i>	465
Design and Implementation of a Machine Learning-Based System for Atrial Fibrillation Diagnosis <i>Yiji Li, Wenyao Li, Jingze Ding, Zijian Zhou, Shihao Han, Bingli Jiao, Lifeng Lin, and Shiliang Huang</i>	471
Phonation Attributes and Artificial Intelligence (AI) to Delineate the Progression of Amyotrophic Lateral Sclerosis (ALS): A Neurodegenerative Disorder <i>Rumana Islam and Mohammed Tarique</i>	477
Hypertensive Retinopathy Diagnosis in Fundus Image using Support Vector Machine <i>Verrent Ulayya Ans, Tri Sardjono, and Nada Fitriyatul Hikmah</i>	483
Non-Small Cell Lung Cancer Classification Using Densely Connected Neural Network <i>Irgi Azarya, Tri Arief Sardjono, Nada Fitriyatul Hikmah, and Norma Hermawan</i>	489
Design of Hearing Impairment Safety Helmet for Deaf People <i>Willy Wijaya, Achmad Arifin, and Fauzan Arrofiqi</i>	495
Development of an Interactive Learning Assistive System for Students with Intellectual Disabilities Using Robot with Audiovisual Intervention <i>Welly Herlambang Kusuma, Achmad Arifin, Fauzan Arrofiqi, and Eko Suprayitno</i>	500
Evaluation of Decentralized Blockchain Hashing for Wireless Sensor Networks <i>Aswadul Fitri Saiful Rahman, Andani Achmad, and Wardi Wardi</i>	506
Integrating Blockchain into Power Grids: An In-Depth Exploration <i>Ameni Boumaiza and Kenza Maher</i>	N/A
Identification Of Smart City Readiness Indicators: A Literature Review <i>Widyantari Febiyanti and Tony Dwi Susanto</i>	518
rEConnect: Smart Waste Bin for Internet Access <i>Ariel M Lorenzo, Gladwin Acorda, Marianne Avila, Jonathan Solmayor, Izella Mae Calalo, Kathlene Realin, and Godwin Sam Mabborang</i>	524
OvOptix: Optical Based Egg Sorting Technology <i>Ariel M Lorenzo, Jenirose Matias, Rudylene Decena, Joshua Nikolai Binayug, James Carl Melad, and Romar John Ogoy</i>	530

Enhancing Photovoltaic Panel Efficiency through a Dual-Sided Water Spray Cooling System	536
<i>Ariel M Lorenzo, Marvin S Silva, Alfredo Gumaru, Gamaliel Soliven, Leslie Soriano, and Christian Taguiam</i>	
Toileting Expression Detection System for Children with Disabilities Based on Feature Extraction Using Support Vector Machine	542
<i>Salsabiela Khairunnisa Siregar, Achmad Arifin, Nada Fitriyatul Hikmah, and Eko Suprayitno</i>	
Developing Toileting Detection System for Children with Cerebral Palsy (CP) Based on Body Gestures Using Deep Learning	547
<i>Muhammad Asyarie Fauzie, Achmad Arifin, Nada Fitriyatul Hikmah, and Eko Suprayitno</i>	
Calibration and Testing of Sensors used During Dialysate Preparation in Hemodialysis Machine	553
<i>Nurlia Febriyanti, Elda Sihotang, Anida Maura Valerina, Fathin Muhammad, Josaphat Pramudijanto, and Rezki El Arif</i>	