

2025 5th International Symposium on Computer Technology and Information Science (ISCTIS 2025)

**Xi'an, China
16-18 May 2025**

Pages 1-667



**IEEE Catalog Number: CFP25Y44-POD
ISBN: 979-8-3315-4451-5**

**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:	CFP25Y44-POD
ISBN (Print-On-Demand):	979-8-3315-4451-5
ISBN (Online):	979-8-3315-4450-8

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

AI-Driven Test Case Generation Based on DeepSeek-Chat Large-Language Model	1
Na Li, Yimei Xu, Jiafan Luo, Jiabin Fang	
Emotion Recognition Based on EEG and Peripheral Physiological Signals	5
Jiling Yu, Yandong Ru, Bingjie Xu, Guocai Yang	
Knowledge-aware Recommendation Model Integrating Denoising Strategy and Multi-view Comparative Learning	10
Yonggui Wang, Jian Feng	
Multi-View Contrastive Clustering Based on Information Fusion	14
Yuquan Shao, Wenjin Jia, Zhiqian Huan, Jun Ma	
Prediction Model of Left Ventricular Function after Transplantation Based on Multivariate Linear Regression	21
Xuan Liu	
LEDIL: Low-Efficiency Experience-Prioritized Diffusion Imitation Learning for Environmental Dynamics Generalization	25
Zhen Wang	
CWT-MCNN-LSTM: A Wavelet-CNN-LSTM Framework for ECG Signal Classification	29
Han Gao, Lihong Yan, Ruibing Shen, Zhi Zhang	
Speaker recognition based on MFCC and GFCC feature parameter extraction	33
Wanni Liu, Yonghong Duan	
Application of Reinforcement Learning in Personalized Learning Path Recommendation in Secondary Education Management	38
Qian Qi	
Factors affecting employment rate based on machine learning	42
Mengxi He, Cong Chen	
Analysis of influencing factors on compressive strength of concrete based on machine learning models	46
Shuling Li, Bowen Shi	
Analysis of Influencing Factors of College Students' Sleep Quality Based on Support Vector Machine Model	50
Bowen Shi, Hongxiang Xu, Xin Zhang, Xiaoliang Guo	
Indirect Measurement of Soil Volumetric Water Content Using Deep Learning Enhanced by Wind Speed Factor	55
Yi Yang, Jie Zhang, Xuefen Wan, Meijia Zhou	
Application of LSTM Model Considering Driving Conditions in Electric Vehicle Battery Range Prediction	59
Cong Chen, Xiaojun Ma, Jun Zhao	
Research on vehicle identification method of Judicial Expertise based on deep learning algorithm	63
Miao Zhong	

Analysis and Evaluation of Human Resource Allocation Based on Data Mining Techniques Qinglian Zhou, Aiqing Wang	67
Real-time Update of Carbon Prices Based on Text Mining and Deep Learning Model: A Case Study of the Guangdong Carbon Market Yiyi He, Shouyi Chen, Chunglun Wei, Chiawei Chu	71
Balancing race, gender, and age accuracy in face recognition using DB-BETA-VAE Xuan Cheng, Chiawei Chu	76
Recognition of epileptic foci based on wavelet transform and convolutional network Ruowen Hu, Huhu Chen, Zhaokun Huang, Jiayu Huan	83
Research on Temperature Prediction Model Based on DNN - LSTM and Multi-head Attention Zirui Luo, Chengyu Hou, Haishi Wang	88
Depression detection using multimodal fusion information with data enhancement Rui Zhang, Chiawei Chu, Chung-Lun Wei	92
A Method for Diagnosing the Fault Types of Water Make-up Pump in HVDC Valve Cooling System Based on STFT and DPCNN Qilang Yu, Sihan Zhou, Haofeng Liu, Liang Qin	99
Improved Isolated Forest Algorithm and Application Shuoqi Wang, Zhengyuan Zhou, Haining Tian	104
Neural Machine Translation Based on the BERT Model Yunchong Zhao, Chiawei Chu, Chung-Lun Wei	109
No-reference Image Quality Evaluation Method Based on zero-shot learning and Feature Fusion Xiaofan Zhang, Lang Zhao	114
Oracle Bone Inscription Recognition Based on the S-MobileViT Network Zexin Li, Shuyi Yang, Zheming Zhao	118
Deep Learning-Based Prediction and Identification of Synthetic Cannabinoid Spectrum Peifa Wang, Shundi Hu, La Chen	124
CBSK-TransUNet: a medical image segmentation model based on improved TransUNet Jian Jia, Ao Ding, Kaibo Yang	128
Intelligent fault diagnosis method for railway locomotive main transformer based on oil physicochemical association rule mining Rui Kang, Ziyang Bin, Shihan Miao, Siyao Qin, Man Li	133
Research on lightweight fusion of multimodal AI for remote pet diagnosis Yucheng Sun, Panlong Sheng	139
Dynamic A* Heuristic Function Optimization Based on Deep Reinforcement Learning and Path Planning in Uncertain Environments Wenhan Li	145
Design of Spam Detection and Classification System Based on Artificial Intelligence Long Zhang, Wannu Liu, Jialong Wang	150

Deep Learning-Driven Intelligent Error Correction and Expression Optimization for English Writing: A Multi-Modal Approach	154
Lin Li	
Multi-scale Object-based Analysis and Stacking Collaborative Ensemble for Heterogeneous Forest Stock Volume Remote Sensing Inversion	159
Yusu Gu, Yaqin Song, Haihan Cai, Jing Chen, Mingyang Chen, Ranran Miu, Shilin Sun	
Federated Learning-Based Data Collaboration Method for Enhancing Edge Cloud AI System Security Using Large Language Models	163
Huaiying Luo, Cheng Ji	
Anomaly Detection and Early Warning Mechanism for Intelligent Monitoring Systems in Multi-Cloud Environments Based on LLM	167
Yihong Jin, Ze Yang, Juntian Liu, Xinhe Xu	
An Educational Application Study of Head Detection Technology Based on YOLOv8	171
Shengqi Hu	
Research on the Mental Health Status of College Students Based on Machine Learning	175
Shuang Lin, Wen Lin	
A Novel SVM-based Hybrid Ranking Algorithm for Software Defect Prediction	180
Siliang Suo, Zhihong Liang, Huan Xu	
MultiSMDTA: Drug–Target Affinity Prediction Based on Multi-Scale Multimodal Features and Multi-Head Self-Attention	185
Jiayan Lu	
DARGAT-GDN: A Robust and Adaptive Graph Neural Network for Few-shot Graph Anomaly Detection	190
Shiyu Yang	
Unbalanced Data Oversampling Method Based on Improved VAE-CGAN	200
Xi Tang, Wenhai Li, Weichao Sun, Tianzhu Wen, Kai Guo	
Machine Learning Approaches to Multi-Sensor Fusion: Overcoming the Limitations of Extended Kalman Filters	209
Jimeng Yang	
Accelerating LLM Inference for Multi-Round Medical Q&A	215
Ziyu Wang, Anping Xiong, Jingcheng Shen	
Policy-Based Branch-and-Bound Decoding with Horizon-Variant Reinforcement Learning for Binary Deletion-Insertion Channel	222
Kai Jin	
Improved Black-winged Kite Algorithm for Welded Beam Structural Optimization and Cost Management	229
Guanyue Lin, Zhengtao Zhou, Kwok Ho Chiu, Hansheng Lin, Xugang Shi, Haohao Ma	
Urban Built-up Area Recognition in Remote Sensing Images Using Deep Learning	233
Chujun Li, Md Gapar Md Johar	
DeepLabv3+ Semantic Segmentation Algorithm for Autonomous Driving Incorporating SE-FPN	238
Yuanle Wu, Yanli Liu, Heng Zhang	

Research on Malware Detection Algorithm Based on Deep Learning	245
Guoyang Sang, Yiqian Peng, Guirong Bao, Dongfang Li	
Development of Badminton Tactical Simulation and Scenario Training System Based on Generative AI	250
Jiming Ma, Long Hao, Kun Qian, Jiashun Long, Li Li, Yanling Zhong	
A Joint NLP Approach Applied to Automotive Aftermarket Services	257
Liwen Hu	
CNN-LSTM for dynamic gesture recognition in hand electrostatic signal processing	261
Xin Xu, Kaiyuan Li, Chen Li, Haoran Guo	
Shared-Neighbor based Multi-Curvature Graph Clustering	268
Yaoyao Jiang, Nan Xiang, Qianxi Liu, Wenjing Yang	
LSTM-based time series detection of abnormal electricity usage in smart meters	272
Jingyi Huang, Yujuan Qiu	
WiFi Fingerprint Localization Model Based on Multi-Scale Residual Convolution and Self-Attention Mechanism*	277
Dongyu Xu, Yijun Wang, Jing Guo, Lingfeng Meng	
SP-DiffFusion: Diffusion-Based Infrared-Visible Fusion via Subspace Learning	281
Jia Chang, Xujun Li	
Research on Precision Identification of Plant Diseases and Pests Based on Multimodal Deep Learning	287
Hanyang Guo, Wenjing Liu	
Research on the Context Ambiguity Resolution Model of Cross-cultural Communication Based on Natural Language Processing	293
Maozhen Liao, Shenghui Guo	
PM2.5 Concentration Prediction Model Based on BP Neural Network Optimized by Integrated Black-winged Kite Algorithm	298
Hua Yang, Zhan Shu, Zhonger Li, Junda Liu, Yuejuan Yang, Yuanhao Qiu	
Exploring the Threat of Kaomoji-Based Backdoor Attacks in Text Classification Models	303
Zekai Cheng, Ruolan Teng, Bingbing Xu, Gaotian Liu	
Application of Few-Shot Driven Cross-Domain Transfer Learning in Quality Appraisal RAG Question Answering System	308
Longwei Zhou	
Text and Type Augmented Contrastive Representation Learning for Knowledge Graph Completion	313
Yuanyuan Zhang	
Key Pathogenic Genes Selection in Intracranial Aneurysms Based on Feature Selection	317
Menghao Yang, Jing Chen, Lingyun Dai, Junliang Shang, Chao Zhao	
A study of bi-granular sentiment analysis combining linguistic knowledge and interactive attention	327
Lu Liu	

Pharmacokinetics-guided breast tumor segmentation method	331
Ke Lin, Xiangfeng Wen, Zhisong Qin, Wenying Chen	
An Integrated Early Diagnosis Model of Hepatitis C Based on Machine Learning	339
Hongyao Zhang	
Temporal Graph Representation Learning for Evolving User Behavior in Transactional Networks	348
Xiqing Liu, Qingqing Xu, Kunyuan Ma, Ying Qin, Zhen Xu	
Adaptive Multi-Agent AI Framework for Real-Time Energy Optimization and Context-Aware Code Review in Software Development	353
Tanush Sharanarathi	
Towards Spatially-Aware Tracking: Pretraining ViTs by Explicit Position Decoding	359
Chenchen Zhu	
Fusion of Transformer and YOLO models for strawberry pest and disease identification	363
Jun Zhao, Cong Chen	
CARABAM-YOLOv8: A Novel Grapevine Leaf Disease Detection Network	367
Hongbiao Xie	
Optimizing Marble Classification with a PSO-GA Enhanced MobileNetV2 Deep Learning Model	372
Marvin Rick G. Forcado, Sivakumar Vengusamy	
Research on the application of Transformer model in French-Chinese translation	379
Liqun Zhang	
Throughput-Power Trade-offs in LoRa Networks via Adaptive Rate Control	383
Junyu Yang, Min Li, Wentao Han	
Reliable Vehicle Platooning via Redundant 5G Link Aggregation in Smart Roads	387
Tongwei Tu	
Multidimensional Power Allocation For High-Speed Railway Downlink Distributed MIMO-OFDM System	391
Lingxiao Hu, Xianglong Liu, Dongming Wang, Tiecheng Song, Guoqiang You	
Power Optimization Strategy of Joint Antenna Selection and Symbol Shutdown in 5G-R Scenario	396
Guoqiang You, Lingxiao Hu, Dongming Wang, Tiecheng Song, Xianglong Liu	
Limited Feedback Overhead Optimization and Beamforming in Cell-Free Massive MIMO Systems for High-Speed Railways	401
Xianglong Liu, Guoqiang You, Dongming Wang, Tiecheng Song, Lingxiao Hu	
An Agent Based Simulation for An Inter-satellite Communication Network of Smart-satellite-swarm	408
Weicheng Lun, Qun Li, Xudong Hu, Can Zhang	
Optimized Design of Data Encryption for Communication Network Security in the Context of Big Data	416
Fei Geng	

Design of Cross-Layer Optimal Transmission Control Algorithm in Low Latency Networks Jinyuan He	421
Simulation and Implementation of Earthquake Wave Denoising based on Butterworth Filter Beichen Zhang, Lihong Yan, Ziyang Geng, Fukui Guan, Ke Li, Linyu Tang	426
Design and System Development of a Full Coverage Algorithm for 5G UAV-Based Heterogeneous Networks in Emergency Scenarios Weixing Liu, Qiqi Cai	430
Design Guidelines-based Ontology to Support Decision Making on Cardiovascular Diseases Risk Assessment Xiaoxia Pu, Junli Zhang, Khin Than Win	434
Graph Optimization-enhanced EKF for Railway Virtual Balise Capture using GNSS and UWB Mengmeng Wang, Jiang Liu, Baigen Cai, Debiao Lu, Wei Jiang	443
Optimizing Channel Estimation for Performance Enhancement in Massive MIMO Systems Yanan Tian	450
Research on Resource Scheduling and Optimization Algorithms in Cloud Computing Environments Chunli Su, Yuanhao Wen	455
WFD: Performance Optimization Strategy of Distributed Databases Cassandra Fei Wang	459
Simulation and Optimization of Digital Baseband Signal Transmission Systems with Matched Filtering in MATLAB Xiaoqing Ma	465
Simulation Study on Time Synchronization Sequence in Satellite OFDM Communication Zhou Dong, Yize Wu, Jun Wang	470
An Adaptive Split Index Scheme for In-Memory Database Systems Haoyun Song	477
Webshell Detection by Transformer Model Yang Fang, Saihan Li, Zhijie Hu	482
Distributed Data Sharing Mechanism for Internet of Medical Things Zhishen Zhu, Yan Wei, Xian Guo, Jinqiao Jiang, Huiyang Chang, Yujing Yu	486
Research on Security Control Methods for Power Distribution Network Terminals Based on 5G Communication Kaixin Li, Hongguang Dai, Di Mu, Yinghe Qi, Deyong Xiao	491
Radio Environment Map Construction Method for Complex Scenarios: The Combination of Concentric Circle Algorithm and Detection Algorithm of Unknown Transmit Sources Liping Chen, Yan Chen	499
A Dynamic Replica Quantity Adjustment Strategy Based on File Popularity Prediction Ke Yu, Yulong Wei, Zhonglei Fan, Yani Chen	504

Research on Adaptive Model Pooling Method for Data Stream Anomaly Detection Based on Concept Drift Identification Strategy	509
Mingwei Li, Zimeng Fan, Lei Song, Lili Guo	
Application of Multi-Level Log Management and Analysis System in Large-Scale Microservice Architectures	514
Bo Li, Zhenghao Qian, Mingdong He, Xiaojuan Zheng, Xuewu Li	
Research on the Implementation and Detection of Tomcat Filter-based MemShell	520
Jinping Wang, Ying Liu	
Multi-Level Hard Denoising for Sequential Recommendation	524
Renhui Luo, Xiaofei Zhu	
Kalman Filter and Extended Kalman Filter: Theory, Numerical Applications and Performance Analysis	532
Zhou Dong, Yize Wu, Jun Wang	
Design of advertisement creative optimization and performance enhancement system based on multimodal deep learning	539
Mengfei Yang, Jingkai Wu, Lingyun Tong, Jiawen Shi	
Tag Cache for Shadow Memory: Enabling Fine-Grained and Efficient Tag Access	544
Xun Cao, Shujuan Yin, Xiangyu Li	
A LSTM-based maritime terminal beam tracking method for LEO satellite communications	550
Tengbo Guan, Haotian Chen, Nanyan Le, Baozhu Li, Xinhong Xie, Zixian Ma, Qianfeng Jing, Chunyi Song, Zhiwei Xu	
Tag-based Two-path Data Cache Efficiently Achieves Cache Side Channel Attacks Immunity	555
Dejian Li, Yingyuan Zhao, Ran Zhai, Xiangyu Li, Xingjun Wu, Yufeng Sun, Hao Zhao, Zhihua Wang	
Research on bionic mechanism based adaptive collaborative self-healing method	561
Wen Sun, Xu Li, Tao Li, Aiqun Hu	
Research on Anti-interference Communication Technology by Fusion of Spread Spectrum and Machine Learning	566
Jun Li, Shundi Hu	
Research on low-power and low-cost smart animal husbandry positioning system based on LoRa transmission	571
Yan Liu, Jianjun Cai, Mingyu Qiu	
Research on Dynamic Allocation of Container Resources in Iot Operating Environment Based on Reinforcement Learning	576
Yunhua Liu, Shaohui Du, Furong Yin, Wei Zhang, Yuxuan Yang, Shijie Li	
Dynamic Resource Allocation and Energy Consumption Optimization Strategy in Edge Intelligent Networks Based on GANs	584
Kaile Xiao, Guang Chen, Zhiyuan Sun, Haiyan Zhao	
Research on the Interconnection Communication Architecture of Embedded IoT Devices Based on Distributed Soft Bus	588
Shaohui Du, Yunhua Liu, Zihao Tang, Jiayi Lin, Yan Zhou, Shijie Li	
Research on DDoS attack and defense system based on SDN controller	594
Rong Cao	

Cybe-Physical Coordinated Attack Path Analysis Considering Attack Preferences of Cyber-Physical Power System	599
Ke Li, Longyun Qi, Haotian Zhang, Yongjian Cao, Huishui Li, Jian Zhou	
Research on Security Protection Mechanisms for Terminal Devices Throughout Their Lifecycle in Trusted Computing Environments	603
Yunhua Liu, Shaohui Du, Jian Chen, Zilong Liu, Wenqin Chen	
Research on Task Offloading Strategy Based on SCA Algorithm	610
Zhiying Yan, Yijun Wang	
Global Cybersecurity Situation Assessment Combining K-means Clustering and Cybersecurity Index	614
Xuanyu Cao, Jiaying Zhang, Peifeng Zheng, Shuai Bu, Keshu Cheng	
Quantum Communication Stability and the Evolution of Local Quantum Uncertainty under Noisy Channels	618
Hui Li	
MPLS-based in-vehicle network test environment construction methodology	623
Junli Guo, Xiangge Meng, Yongteng Ou, Qing Liu	
IT Deployment Domestic Substitution An Integrated Approach with Shaanxi Ruiqian Technology Case Study	629
Zhao Liu, Xiaonan Zhang, Jiangnan Qu, Yuxin Qu, Xinyue Wei, Jiafan Luo	
Research on IVPF 3D Dynamic Local AUV Path Planning Algorithm	636
Xinyu Liu, Juntao Zhao, Yingying She, Yuan Liu, Sha Xie, Hengling Liu, Tianqi Xie, Chao Zhang	
RF Transceiver Integrated Radar Signal Preprocessing Method Based on Dual Chip B9361	644
Chao Feng, Jing Zhang	
Research on the fitting method of vehicle radiation emission limit based on enterprise goal setting	648
Xiaomin Zhang, Shurong Cai, Jiandong Guo, Yue Zhang	
Flow Map Compression and Reconstruction via Multi-Resolution Hash Fusion Neural Network	653
Zekai Yang, Jun Tao	
Research on Multi-source Data Integration Technology Based on Smart Middle Platform	658
Feng Xu, Limin Yuan, Enlai Zhao, Xiaonan Sun, Xiaoxian Shen	
An Intelligent Power Flow Adjustment Method Integrating Deep Neural Network-based Convergence Judgment and Proximal Policy Optimization	662
Chuang Xu, Tianqi Zhao, Xianlong Lv, Xingong Cheng, Junwei Liu, Conghao Li, Rui Liu, Zhengjun Jiang	
Performance Analysis of the BASR-T-HARQ Protocol in Wireless Communication Systems	668
Yanjuan Li, Huan Qian, Yongqiang Zhou	
Design and Implementation of Safety Production Early Warning System for Hazardous Chemicals Based on Industrial Internet	673
Yixian Li, Lei Yang, Xiufang Zang, Jingwen Chang, Weihua Jing	
Research on Citation Similarity Algorithm Based on SLN	678
Weiling Chen, Erhua Sun, Guomin Liao, Xiaocheng Cai	

A Tripartite Federated Learning Framework with Ternary Gradients and Differential Privacy for Secure IoV Data Sharing	682
Junkai Xue, Yi Liu, Shengbao Li	
Research on Knowledge-Augmented Intelligent Recognition of Radar Active Jamming Signals	687
Jifeng Jiang, Weihong Shi, Hong Wen, Yingwei Zhao, Runhui Zhao	
A Large Language Models Security Performance Evaluation Method Based on Analytic Hierarchy Process and Shapley Value Fusion	691
Juntao Mao, Hong Wen, Wenjing Hou, Wenjun Luo, Yuzheng Chen, Yu Pang	
Blind equalization and scrambling techniques for non-standard signal reception based on DVB-S2 (X)	695
Longhao Dong, Hong Wen, Tao Tang, Yu Pang, Yuanhang Wei, Ying Luo, Hengwei Ma, Jifeng Jiang	
Research on Multi-Feature Fusion Open-Set Recognition Methods for Radar Active Jamming	699
Yuanhang Wei, Yongfeng Wang, Hong Wen, Wenjing Hou, Yingwei Zhao, Ying Luo, Hengwei Ma, Longhao Dong, Di Liu	
Search Planning Problem for Lost Targets at Sea Based on Historical Trajectory Information	703
Jie Yang, Tianyue Yu, Yasheng Zhang	
Analysis of Modern Web Penetration Techniques and Proactive Defense Mechanisms	712
Huashan Wang, Bo Meng, Xiao Zhang, Dashan Wang, Hongyan Xia	
Intelligent Optimization Method for Multi-Device Collaborative Operation in Water Resources Scheduling System	717
Donghui Xie, Yu Dong, Qingning Chen	
FusionMVS: Leveraging Attention and Visual Compression for Multi-View Stereo	725
Xiaodong Li, Jinzong Liang, Yuan Liang	
Maestro: Multi-Agent Enhanced System for Task Recognition and Optimization in Manufacturing Lines	730
Minhui Xie, Shujian Chen	
Data2Dialogue: Structured Enterprise Knowledge Grounding in LLM Agents for Personalized Wellness Sales	734
Shijin Wang	
PrivacyPreserveNet: A Multilevel Privacy-Preserving Framework for Multimodal LLMs via Gradient Clipping and Attention Noise	739
Yunfei Guo, Yiming Yu	
Attention Fusion of User Behavior and Content Data in Recommendation Systems	744
Hanqin Zhou	
Improved VMD-LSTM Hybrid Model for Solar Power Output Forecasting	748
Ke Deng, Yulei Li, Xinchun Wang, Jiaxuan Ren, Xuan Jin, Shaorong Wang	
The Visual Analysis Application of Circular Visualizations in the Management of Sci-Tech Innovation Platform	754
Xiaoyu Qi, Shengjie Xu	

Design and Implementation of Chinese Herbal Medicine Management System	762
Xiaoju Ma, Yuhao Li	
Research on Monitoring for Heterogeneous Kubernetes Clusters	767
Guifa Sun, Jianpeng Sun, Xiguo Xie	
An Adaptive Dynamic Programming-Based Control Framework for Multi-Agent Systems with BP Neural Network Integration	775
Chen Chen, Xiangmei Zhao, Fengjiao Jian, Rong Wang	
Using AIGC Confidence Levels to Quickly Obtain Golden Training DataSets	779
Robert Kuo-Chung LIN, Keen Hon Wong, Jessica Wen-Jie LIN	
Unlocking the power of student feedback a data-driven approach to teacher assessment for eulogio “amang” Rodriguez institute of science and technology	783
Jesus S. Paguigan	
Design and Implementation of Low-Code Based Laboratory Management System for Universities	788
Xiaoju Ma, Chengzuo Yu	
Optimization of Rotation Target Detection Algorithm in Remote Sensing Images Based on Deep Learning	793
Hanhan Huang, Bangjun Lei	
Innovative Optimization of Quantitative Trading Strategies in the Solana Blockchain Ecosystem	797
Wenchao Li	
A Method on Construction of Digital Prototype for Various Radars	801
Yifei Yan, Shijia Wang, Chonglin Fang	
Design of mimic security integrated framework for embedded systems	806
Wenqiang Luo, Ming Ni, Xinsheng Yu, Xiang Li	
Farm Farming Inspection System Based on Spring Boot Framework - Dairy Goat as an Example	811
Xuan He, Xiaochun Du, Sushan Lei, Fuqui Guan, Ke Li, Beichen Zhang, Ziyang Geng, Linyu Tang, Tao Yan	
Design of Bridge Health Monitoring and Safety Assessment System Based on Digital Twins	816
Ruichuan Zhao	
Design of a Programmable Motor Test System Based on FPGA	820
Xi Zhou, Zhihua Su, Min Li, Jing Qiao	
Design and Implementation of a Fitness Application Based on HarmonyOS	824
Xiaoju Ma, Cong Chen	
Developing a Smart Medication Management Framework: Integration of YOLOv10 Detection and XGBoost Risk Modeling	829
Xiaoxia Pu, Bowen Shi, Ruixia Pu, Gailu Zhao	
Smart Farmland Monitoring and Management System Based on STM32 and Multiple Sensors	834
Pei Liu, Jinxia Liu	

Design of a Search and Rescue Robot Based on STM32	839
Ruibing Shen, Zhijie Hu, Jiawei Zhao, Zhuoxi Zhang	
Design of an Automatic Following Smart Suitcase Based on Microcontroller Unit	843
Jiashuo Wang, Ruibing Shen, Yiman Shao, Shanjie Zheng	
Design and Implementation of an Enterprise ERP System Based on Microservice Architecture	847
Xiangtian Zheng	
Design and Implementation of Virtual Museum Based on Unity3D	851
Jiangtao Hu, Bing Xie	
Deep Learning-Based Smart Cattle Farming System	855
Huijing Wang, Yimei Xu	
Embedded and Python based Automatic Target Reporting System	860
Yuhong Wang, Huhu Chen, Junhao Zhou, Shimin Cao	
Automatic target scoring system based on the C++ environment and ONNX model	864
Xingyu Wang, Huhu Chen, Fuqiang Wang, Peng Yang	
License Plate Recognition System Based on Embedded Technology and YOLOv11	868
Xuesong Du, Huhu Chen, Jiayu Huan, Yunshan Du	
Design and Application of Mobile Face Recognition System Based on FaceNet Model	872
Wensheng Zhang	
Design and realization of real-time online monitoring system for river water quality based on NB-IoT	877
Jiajia Guo, Xiufang Zhang, Liqin Rao	
Design and Implementation of Micro Meteorological Monitoring Station	881
Zhihua Su, Zhiyuan Cheng	
Research on Simulation and Interaction Design of Art Exhibition Hall under Virtual Reality Technology	885
Jing He	
Design of Site Selection System for GeoStar Intelligent Fire Observation Tower	889
Ziheng Weng, Lu Ren, Yuchen Yang, Dangfeng Zhang	
Research on the Design and Optimization of Embedded Systems JavaScript Virtual Machine	894
Hongfei Hu, Yimei Xu, Yongheng Liu, Huijing Wang, Yuchen Yang, Zhenze Shi	
Study on the progressiveness evaluation of power technology project based on fuzzy analytical hierarchy process	898
Hongye Zhang, Yuxi Liu, Hailiang Yu, Heng Liang, Jing Xiao, Yu Liu, Tipeng Wang	
YOLOv7-Based Concrete Surface Defect Detection Algorithm with Enhanced AKConv	905
Zhehui Mi	
Improved YOLOv8n Remote Sensing Image Target Detection Method Based on Context Information Fusion	913
Lang Zhao, Pengju He, He Zhao	

Detecting Resource-Management API Misuses using QA Language Models	918
Wuqiang Shen, Yi Yang, Guiquan Shen, Jinghua Liu, Yechao Wang, Lei Cui	
A Real-time Posture Monitoring System Based on Kalman-MediaPipe Fusion Algorithm	923
Jiamin Zeng, Zhaoyu Shou, Weijie Gao, Xiaohu Yuan, Xingyu Wei, Yu Hou, Kaiyi Jiang	
Business Process Value Quantification Method Based on Precedence Chart Method	931
Guiyu Tian, Xin Xie, Feng Xu	
Global path planning for mobile robots based on improved A* algorithm	935
Fanke Kong, Shengju Sang	
Entity Perception Enhancement and Topological Neural Network Architecture Search for Relation Extraction in Geological Literature	940
Hao Li, Kun Gao, Zhaoning Tian, Yan Chen	
Lightweight Neural Networks for Remote Sensing Scene Classification: Performance Evaluation and Transfer Learning Enhancement	944
Liao Zhang, Xianlei Ge	
A SAEENet-based fine-tuning transfer learning framework for P300 classification	949
Gianning Hua, Lintao Xu, Wenkang Liu, Shangpeng Yu	
ORB algorithm for attention enhancement in weak texture environments	955
Wang Dong, Zhiheng Wang, Yanli Liu	
Category Satellite Image Target Detection Based on Lightweight Improved YOLOv11s	961
Zhiyuan Liu, Liang Chang, Tingting Sui	
Research on the Design of Sidelines in Multibeam Bathymetry Based on Greedy Algorithms and Geometric Reasoning	967
Hangyu Guo	
Optimization of Redis Cluster Systems Based on Load Balancing Mechanism	973
Yimei Xu, Pengju He, Xiaohua Zhang, Chunli Su	
Study of variable gain iterative learning control based on correlation coefficient	977
Tianyi Lan, Wenfei Fan, Shanglei Feng, Mengxue Zhou, Xujing Wang	
Positive dispersive ring cavity erbium-doped fiber lasers based on Bi2O2Te-SA: from continuous-wave mode-locking to dual-wavelength Q-switched mode-locking	983
Rui Hu, Zhanqiang Hui	
Research and Application of Intelligent Steering and Control Technology for Wide Area Internet	991
Zhenqiang Li, Guangchen Song, Bo Liu, Zhaorui Huang, Tiannan Zheng, Cheng Chang, Yan Sun, Ninglun Gu	
Spot-Guided GeoTransformer-Based Point Cloud Registration	995
Yong Yang, Sheng Han, Xinghan Lu, Junjie Liu, Wei Huang, Yuping Bai	
Design and Implementation of an Automotive Remanufactured Parts Management Platform Based on Microservice Architecture	1001
Jianjun Cai, Hao Yu, Hong Zhang, Dongyu Li	

A Lightweight Potato Surface Defect Detection Algorithm Based on Improved YOLOv11n Ranhui Zhu, Haitao Wu, Xiangyou Wang	1006
Research on Recognition Technology of Concrete Rail Sleeper Cracks Based on Semantic Segmentation Algorithm Ruoxi Chen, Huan Wang, Zeqi Chen, Xuanqi Zhang	1010
FPGA-Based High-Throughput Accelerator for DETR Detection Algorithm Aina Chen, Rongchun Li, Peng Qiao, Yuhao Shao	1014
Design and Implementation of Monitoring System for the Elderly Living Alone based on Internet of Things Linhan Yao, Lei Yang, Feifei Weng, Ouya Li	1021
Design of Intelligent Weeding Robot System Based on Deep Learning Jianhao Huang, Yong Ding, Yijian Li, Zhixiao Wei	1026
Multi variable time-series anomaly detection for intelligent operation and maintenance Haolin Liu	1030
AI Semantic Conflict Detection in Multimodal Requirements Engineering Jinxia Liu, Pei Liu, Ziyang Liu	1035
Occlusion-aware UAV Recognition via Advanced Semantic Segmentation Models and Predictive Trajectory Algorithms He Zhao, Ruier Zhang, Cheng Ma	1040
Design and Implementation of a Multi-Sensory Interactive Virtual-Reality Platform for Artistic Creation Shan Wang, Shani Liu	1044
RTFN: Multi-Scale Spatio-Temporal Fusion for Continuous Sign Language Recognition Haotian Su, Shangchen Ke, Xing Zhang, Yunhui Zhang, Yingda Zhang, Yuanming Li, Yufeng Ding	1048
Design and Implementation of a Fully Automated Smart Aquarium System Zhikun Wang, Xi Zhou, Huhu Chen, Jiayu Huan	1054
Design and Research on Full-Memory Storage Scheme for Relational Databases Hong Wu	1059
The Design and Implementation of a Firefighting Helmet Based on Internet of Things (IoT) Technology Rui Shao, Xiufang Zhang, Zixin Yan	1063
ANTLR-Based Complex SQL Data Lineage Parsing and Visualization Zengqian Huang, Xiaoli Chai, Ding Qiu	1067
Prediction of Asphalt Pavement Roughness Index Based on Bayesian Optimization XGBoost Algorithm Jianing Chen	1073
Exploring Genetic Algorithms and the Greedy Algorithm: A Comparative Study on Solving Stable Marriage Problems Kelvin Ovabor, Travis Atkison	1077

A Whitelist-Based Interception System for Suspicious Executable and Script Files in Windows	1082
Ping Yang, Li He, Xiaoqiang Zhou, Qidan Gong, Yiwen Yang, Xiaodong Sun	
Research on Algorithms for Reducing Rotor Noise in Drones Based on Microphone Arrays	1086
Wenyu Gao, Weijian Qin, Zijun Teng, Haitao Su	
Research on the Deployment and Optimization of SAP S/4HANA Systems Based on HA Architecture	1090
Mei Li	
Recursive Feature Aggregation Convolution Combined with the Optimization and Improvement of YOLOv11 in Image Segmentation Techniques	1094
Rong Wang, Chen Chen, Na Li, Fengjiao Jian	
Construction and Validation of a Dynamic Prediction Model for the Event Process under the Influence of Multiple Factors	1099
Futao Chen, Qiren Zhu	
Speech Signal Processing and Implementation based on DSP Platform	1104
Lihong Yan, Han Gao, Beichen Zhang, Tianqi Yang, Zhi Zhang, Xiyang Chi	
Air Quality Prediction Based on PITS	1108
Wenxing Hao	
Optimization and Improvement of the ASF-P2 Algorithm Based on YOLOv11 in Target Detection	1112
Fengjiao Jian, Chen Chen, Na Li, Rong Wang	
A Detection Method for Yarn Ends of Cop Yarn and Warp Yarn Based on YOLOv8	1116
Linjiang Li, Chang Xu, Yuewen Su, Shaojun Zhu, Caixia Guo, Shoufeng Jin	
Multi-vehicle detection method based on YOLOv8 for severe weather conditions	1120
Zhang Zhi, Maole Zhao, Han Gao, Lihong Yan, Ruibing Shen, Xun Li	
Processing and Implementation of UAV Sensor Signal Noise based on FPGA	1124
Tianqi Yang, Han Gao, Qiutong Li, Lihong Yan, Jiaqi Xu, Yitong Ge	
Anti "low slow small" target detection, recognition and tracking algorithm	1128
Fan Li, Ze Chen	
Multisensor Fusion for Smart Classrooms Using OpenHarmony	1133
Qiutong Li, Chunli Su, Jingsheng Yang, Zhongqi Jin, Jinxia Liu, Gaoxing Yin, Dongwei Jiang, Yitong Ge, Xuan He	
Algorithm Comparison for Real-Time Indoor Environment Digital Twin using BIM	1137
Haiyan Sally Xie, Sai Ram Gandla, Mangolika Bhattacharya, Houzhuo Gai	
Aerial Image Detection Based on DCB-YOLOv8-SOD: An Improved Object Detection Model	1142
Yuanbo Gao, Xiangzhen He, Wenlong He, Qiang Ma	
Intelligent automatic editing system based on SpringBoot framework - Helping cultural inheritance	1148
Sushan Lei, Xiaochun Du, Xuan He, Peiheng Yang	

Research on the Design and Application of English Teaching Resources in Colleges and Universities under Virtual Contexts	1152
Li Gao	
Optimization and eddy current loss analysis of ultra low frequency rotating permanent magnet mechanical antenna	1157
Jiacong Wang, Zeyan Wei, Ke Liu, Xiaoyu Wang	
Design and realization of college employment information service system based on big data	1162
Yu Zhang	
A Complex Scene Text Detection Method Based on Adaptive Scale Attention and Cross-scale Channel Fusion	1166
Xiuze Dong, Yifan Hu, Chuansheng Su	
Acoustic emission source localization of heterogeneous materials based on BP neural network	1172
Jing Qiao, Xi Zhou, Huhu Chen	
Embedded Lightweight Instrument Value Automatic Reading System Based on C++/ONNX	1176
Jiayu Huan, Huhu Chen, Xi Zhou, Ruowen Hu	
Research on data generation algorithm based on improved echo state network	1180
Jingxue	
An Enhanced Pavement Crack Detection Approach Using Improved YOLOv8 Model	1184
Zhiyuan Zhou, Yanan Tian, Adil Khan, Jiarui Liu, Nouman Hameed	
PLGDC: A parallel density clustering algorithm based on LSH and grid density	1189
Kaibin Xu, Xinghang Zhou, Bin Qiu	
Design and implementation of agricultural greenhouse monitoring System based on HarmonyOS	1194
Jianxi Liu, Ying Liu	
Coordinated Behavioral Ordered Weighted Averaging Operator and Its Application in Group Decision Making	1198
Ying Zhou, Jiarui Zhang, Miao Yu, Mingzhuo Jiang	
Street View Image Restoration: Co-optimisation of Criminisi Algorithm with DeepLabv3+ Model	1203
Ruihan Liu, Yuying Fang, Meiqing Xu	
Simulation of Lunar Soil Excavation and Landfill in the Lunar Power Station Construction	1207
Yuena He, Weiyang Xu, Meng Chen, Xiaoyu Wang, Zimeng Gao, Wenwei Qiu, Hang Shi	
A Real-Time High-Temperature Bleed Air Leakage Monitoring Method Based on High-Precision Temperature Field Reconstruction	1213
Junru Pan, Xin Gui, Xiao Liang, Fanhao Zeng	
Insulator defect detection method based on attention mechanism and deep feature fusion	1218
Liang Gao, Yanli Liu, Heng Zhang	
Research on log anomaly detection method based on deep learning	1227
Yu Shi, Hongchang Liu	

Construction of a Recurrent Neural Network Machine Translation Framework Based on Data Enhancement and Attention Mechanisms	1231
Junting Huang	
Research on High-performance Blockchain-based Trustworthy Data Mechanism for Distributed Energy Collaborative Trading	1236
Hongfa Li, Yuxiang Cai, Desheng Bai, Shuang Sun, Weiyu Wang	
An Efficient Batch GEMM Framework for Deep Neural Networks	1240
Siliang Suo, Zhihong Liang, Xiaowei Zhao	
Research on the Improved YOLOv8-Based Road Damage Detection Model	1245
Yuqi Wu	
Research on the evaluation of SOF ROTRAY-WING effectiveness based on history date regression	1250
Nuo Cheng, Yuanbo Xiong, Yibing Zhao, Lei Wang	
Temporal-Spatial Deep Learning for Memory Usage Forecasting in Cloud Servers	1256
Aidi Kai, Danyi Gao	
Computer Vision-Based Traffic Monitoring: Design of a Red-Light Violation Detection System for Urban Intersections	1260
Lei Yang, Jiangqian Si, Pengju He, Lang Zhao	
Controllable Rainy Image Generation for Autonomous Driving via a GAN-Based Framework	1265
Yuanzhi Zeng, Su Yan, Jianqiu Li, Ting Huang, Shuang Ai, Haipeng Zeng	
Rainfall Prediction Based on PCA-RF Model	1273
Hailing Wei, Tao Lu, Sicong Huo, Pengying Deng	
Flight attitude prediction model based on LSTM	1279
Shanwen Wang, Yaojie Wang, Chonggao Zhong, Rui Dai	
Hybrid Evaluation of Translation Quality in AI-assisted Language Learning: A Quantitative Approach Integrating BERT and Human Feedback	1284
Wei Zheng	
TFGAN: A time-series Generation Adversarial Networks based on Time-Frequency Consistency	1288
Xiaohong Qiu, Zhuofeng Sun	
Dynamic Multi-Factor Optimization for Elevator Group Control Scheduling	1296
Zhengrui Zhang	
Hybrid Complex CNN and Wav-KAN Network for High-Accuracy 2D DoA Estimation	1302
Yingwei Zhao, Hong Wen, Tian Liu, Jifeng Jiang, Runhui Zhao	
Optimisation of UAV Target Recognition Method Combining Self-Supervised Learning	1306
Tingwei Xue, Lisha Peng	
Research on air pollution prediction method based on FE-LSTM	1310
Qi Zhang	
Compressed Sensing Reconstruction Algorithm Based on Elman Neural Network	1315
Yuqing Zhang, Tao Yu	

Research on Multimodal Interaction Design for UAV Operating Systems Based on Safety and Emotional Considerations	1320
Fangyuan Jiang	
Application and Analysis of Software Performance Testing Based on LoadRunner	1324
Yabo Shang, Yanyang Wang, Hui Chen	
An Automated Identification Method for Controllable Memory-Related Fields in Proof-of-Concept Code	1329
Fangbo Qin, Chao Feng, Jiarui Chen, Chaojing Tang	
Enhancing Document-Level Question Answering via Multi-Hop Retrieval-Augmented Generation with LLaMA 3	1339
Xinyue Huang, Ziqi Lin, Fang Sun, Wenchao Zhang, Kejian Tong, Yunbo Liu	
Author Index	