2026 International Conference on Computer Intelligence and Software Engineering (CICSE 2026)

Guangzhou, China
12-14 June 2026

IEEE Catalog Number: CFP266BW-POD
ISBN: 979-8-3195-0478-4

IEEE Advancing Technology for Humanity

Copyright © 2026, 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:	CFP266BW-POD
ISBN (Print-On-Demand):	979-8-3195-0478-4
ISBN (Online):	979-8-3195-0477-7

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

Enhanced YOLOv11n for Small Object Detection in Complex UAV Scenes 1
Rong Ma, Liang Weng, Yaoxiang Zhang

TinyML Model for Anomalous Gait Recognition in Real Clinical Scenarios: A Study on Generalization 5
Yuxuan Peng, Jinhao Zhang, Jiaming Hao

Application of Binary Particle Swarm Optimization in Node Planning for Power Information Edge Computing 10
Bailong Feng, Zichun Gao, Hairong Zhang, Jianbu Shi

Quantum Information Processing 3DAV Agent Collaborative Computing Architecture 17
Zhaoyang Chen, Jian Zhang, Feifei Niu, Tuchao Li, Meijie Qu, Yue Zhu

A Preliminary Study on 3DAV Coding Resource Allocation Optimized by Multi-Agent Game 22
Tuchao Li, Jian Zhang, Meijie Qu, Zhaoyang Chen, Yue Zhu, Feifei Niu

Method for Distributed Data Security Sharing and Recovery of Electric Power Information System 28
Bailong Feng, Quan Zhang, Zinan Zhang, Haochen Tan

Research on Edge Device Fault Prediction Based on Lightweight Improved GA-BP Neural Network 35
Feifei Niu, Jian Zhang, Liang Guo, Binchao Yu, Miaofang Shen, Xiaobo Yao

Design of an Improved YOLOv11s-Based UAV Inspection System for High-Voltage Transmission Lines 41
Yushan Zhang, Yunxin Ye, Yifei Wang, Qihui Yang, Yan Song

A Multimodal Perception-Driven Deep Reinforcement Learning Algorithm for Low-Altitude Obstacle Avoidance in Helicopters 48
Yuantao Wang, Zhiyong Yan

AI-Driven Code Quality Assessment Model and Implementation for Complex Power Grid Software Systems 56
Wenlong Zhang

Research on Key Technologies for Power Grid Operation Process Modeling and Automated Execution Based on Low-Code Platforms 62
Jing Wu

Scalability and Runtime Efficiency of Low-Code Platforms for Multi-Scenario Power Grid Operations 68
Kaikai Wang

Research and Applications of Deep Learning-Based Methods for Materials Property Prediction 73
Zhenyu Zhang, Hongpeng Wang, Jiaming Liang, Haodong Sun, Yuwei Wang

Reinforcement Learning-Based Motion Planning and Adaptive Control Method for Robotic Manipulators 78
Junyi Wen

A Machine Learning-Based Method for Mechanical Material Property Prediction and Optimization Design 84
Junyi Wen

Computer Modeling and Strategy Optimization of UAV-Released Smoke Occlusion Payloads Using Geometric Constraints and Particle Swarm Optimization 89
Chunbo Xing, Qiwen Deng

Spectral Numerical Computation and Multi-Beam Correction for Epitaxial Layer Thickness Measurement 95
Qiwen Deng, Chunbo Xing

Design and Implementation of a Low-Power Wireless Communication Chip for the Industrial Internet of Things 101
Tianrun Li

Machine-Learning-Enhanced Process Mining for Anomaly Detection in Cyber-Physical Business Systems 106
Chuqiao Tian

Research on Underwater Target Detection and Recognition Based on Deep Learning 111
Jianing Hou, Yanhui Wei, Yuhui Huang, Junbo Fang

A Multi-modal Artificial Intelligence-Based Method for Campus Security Risk Prediction and Emergency Response Optimization 118
Fuqing Hong

Design and Implementation of an AIGC-based Cybersecurity Education Animation Generation and Recommendation System 125
Jiwen Guan

Lightweight Large Model Adaptation Edge Terminal Malicious Code Real-time Detection and Dynamic Defense System 132
Deqiang Wu

Multimodal Large Model-Driven Framework for Deep Identification and Early Warning of Phishing Emails and Websites 138
Zebo Huang

Construction of a platform for security asset mapping and abnormal behavior monitoring of massive IoT terminals 146
Zebo Huang

Cloud Environment-Oriented Network Security Monitoring and Dynamic Defense Mechanisms 153
Chenglong Du

Large Language Model-Driven Cybersecurity Threat Detection and Intelligent Analysis 159
Sheng Xu

Domain Large Model-Driven Full-Chain Tracking and Traceback for APT Attacks 165
Jiaqi Sun

An abnormal traffic detection model for multimodal networks integrating CNN and Transformer 172
Yingye He

Design of University Data Governance and Intelligent Analysis System Based on Microservice Architecture 178
Qinyan Qiu

An AI-driven management and service optimization method for university laboratories 185
Tao Xie

Research on Laboratory Network Anomaly Detection and Intelligent Management Methods Based on Deep Learning 191
Shuyu Wu

Research on Structure Optimization Method of Sigma-Pi Neural Network Based on Structural Entropy Regularization 197
Rongkang Liu, Jing Yu

Research on Lightweight Image Classification Method Based on Joint Constraint of Structural Entropy and Cross Entropy 203
Keren Wen, Yujiao Wang, Zhixing Yu

Four-Dimensional Metrics for Interpretable Fault Localization in Distribution Networks 208
Mengya Chen, Xuan Lin, Zhaocheng Sun, Jipeng Chen, Fucan Zhang

CMR-SMOTE: Centrality-Guided Majority Refinement for Imbalanced Classification 215
Kun Qian, Yi Yang, Yitao Duan, Xisong Miao

Small-Sample Fault Diagnosis of Mountainous Distribution Networks Based on CR-SMOTE and RBF Neural Networks 220
Jipeng Chen, Xinyu Zhang, Wenjie Yu, Mengya Chen, Fucan Zhang

Distribution Network Fault Prediction Method Based on Optimal Time-Window Mechanism 225
Fucan Zhang, Wenjie Yu, Hong Wang, Jipeng Chen, Mengya Chen

Efficient Fine-Tuning Method for Large Video Models Based on Video Segmentation and Maximum Confidence Ensemble 231
Wenming Sun, Yujiao Wang

YOLOv11n-OptCBAM Based Edge Transformer Oil Leakage Detection Method with Lightweight Attention Mechanism 235
Peiji Wang, Kaiguo Qian

Fatigue Life Prediction and Fault Diagnosis Model for Mechanical Materials in Intelligent Manufacturing 242
Haolin Ba

Energy-Efficiency Optimization for Power IoT Monitoring Devices Based on LSTM and Reinforcement Learning 248
Yonggang Chen, Fafa Mu, Pingping Lang

A Study on Rule-Driven Energy Management and Scheduling Strategies for Microgrids Considering Time-of-Use Tariffs and Demand Charges 255
Hongyang Li, Zhichen Li

Fast Computation Methods of Number-Theoretic Functions and Their Applications in Cryptography 261
Yanqiao Li

Construction and Application of High-Precision Detection Model for Grid Equipment Defects Based on Unmanned Aerial Vehicle Inspection 267
Shu Shang, Meng Xue, Jiacheng Liu, Ziqi Wang

Integrated Ground Navigation and Air Traffic Control System for the Entire Airport Operations Process 273
Ziheng Gao, Minghua Wang

Intelligent Investment Research Systems and Investment Decision Optimization Empowered by Large Models 280
Peiyi He

An Intelligent Navigation Support System for High-Density Flight Operations 293
Xiang Peng, Nan Yang

Study on Image Recognition Algorithm for Key Patterns in Stock K-line Charts Based on Improved Deep Convolutional Neural Network 300
Junquan Zhang

A control method for mobile robots integrating deep learning and path optimization 306
Yansong Zhao

Research on the construction of urban agricultural data sharing platform based on blockchain 312
Jiajun Chen, Hong Zhu

A Logistics Co-Optimization Model for Lunar Colony Construction Based on Robust Mixed-Integer Programming 318
Changyue Wu, Yihang Chen, Cheng Yang, Dan Hong

Research on the Application of AI Driven 3D Printing Intelligent Experiment Management System in University Teaching 324
Jiabao Li

Grounded Refusal in Dialogue Troubleshooting Agents via Constrained Reinforcement Learning 328
Xianyu Li, Dong Jin, Shuangwu Chen, Wangming Li, Junling Guo

Crop early disease location technology based on high-frequency enhanced diffusion model in complex field background 334
Jiaxin Li, Xinyue Gong, Xiaoya Li

Cross-border e-commerce sales forecasting based on spatio-temporal graph convolutional network 341
Yuwei Chen

Research on Network Behavior Analysis and Intelligent Management Model for University Laboratories 347
Jiancheng Li

Design of a ROS- and Computer-Vision-Based Intelligent Sorting System for a Six-Degree-of-Freedom Robotic Arm 354
Chengyan Guo

Cloud-Computing-Enabled Smart Water Conservancy Monitoring Platform and Real-Time Data Processing 359
Chang Yang

Research on an Intelligent Perception and Decision-Making System Integrating YOLO and a Local Large Model under an End-Edge-Cloud Collaborative Architecture 364
Qiong Liu, Shidao Luo, Yasi Zhan

An Intelligent Fish Health Assessment Method Combining Computer Vision and Water-Quality Parameter Modeling 370
Bing Li

Low-Light Video Frame Enhancement with High-Frequency Reflectance Boosting and Adaptive Illumination Adjustment 376
Hao Li

Design of a human-computer collaboration system for information fusion in multimodal interaction 382
Yuxing Zhang, Jiadong Zhang, Sheng Zhou

Software Defect Prediction Model Based on XGBoost with Recursive Feature Elimination 389
Runfeng Guo, Yu Li, Jiaqi Chen, Yutian Zeng, Yuxuan Li, Jiasui Huang

Performance Analysis of Smart Grid Fault Diagnosis System Based on Edge Computing Architecture 396
Zhen Xiang, Liang Zhang, Xiaoyan Guo, Jian Cao, Xuan He, Qiang Zeng

OnDeBERTa: An Ordered Neuron Memory Enhanced DeBERTa Model for E-commerce Review Sentiment Classification 400
Jingwen Liu, Weichang Gao, Meijun Ou, Bin Fu, Xuanbo Huang, Yisha Huan

The cross-scale edge-aware network improves the pixel-level localization accuracy of PCB solder joint defects 406
Yingying Bi, Kai Yan

Adaptive Test-Time Reasoning with Uncertainty-Guided Verification: Enhancing Intrinsic Reasoning Capabilities of Large Language Models 413
Hongbo Zhao, Shouchun Mao, Dashuai Chen

Decomposing Mathematical Reasoning into Hierarchical Feature Circuits: A Sparse Autoencoder and Causal Attribution Framework 419
Hongbo Zhao, Shouchun Mao, Dashuai Chen

A Hierarchical Bidirectional Attention Framework for Text-Image Cross-Modal Alignment in Chinese Scenarios 425
Yichun Luo, Xuxin Zhao