

# **2025 4th Asia Conference on Algorithms, Computing and Machine Learning (CACML 2025)**

**Guangzhou, China  
28-30 March 2025**



**IEEE Catalog Number: CFP25BS9-POD  
ISBN: 979-8-3315-4315-0**

**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:	CFP25BS9-POD
ISBN (Print-On-Demand):	979-8-3315-4315-0
ISBN (Online):	979-8-3315-4314-3

**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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

# Table of Contents

## **Article 1**

Hybrid compressed lightweight epilepsy detection network based on greedy strategy

*QiHu Miao, Hao Lin, YuRun Peng, Hao Liu*

*Page:1-6*

## **Article 2**

A genetic-based convolutional neural networks optimization for fault diagnosis of rotary agriculture machine

*Mateusz Sewioła, Krzysztof Tarasiuk, Paweł Kuszczner, Arkadiusz Mystkowski*

*Page:7-12*

## **Article 3**

Accurate Brain Tumor Segmentation Based on an Improved U-Net with Feature Aggregation

*Yuan Cao, Yinglei Song*

*Page:13-17*

## **Article 4**

Quantum Attack Implementation of TWINE Block Cipher

*Zou Kun, Dong Xinfeng, Zhang Fuzhong, Cheng Rong*

*Page:18-33*

## **Article 5**

Self-Geometric priors and rough-to-fine cascade optimization based on SSM for surface reconstruction from sparse point cloud

*Peng Wang, Wenbo Zheng*

*Page:34-38*

## **Article 6**

MC-YOLO: A Context Aware Down Sampling Algorithm for Construction Site Object Detection

*Dandan Qi, Weiyu Yu, Qimin Chen*

*Page:39-44*

## **Article 7**

Evaluation and Prediction of Mixed-Precision Quantization for Edge Model by Graph Transformer

*Lin Li, Hui Feng, Bo Hu*

*Page:45-52*

## **Article 8**

Real-time Multi-Object Tracking Algorithm for UAV Based on Deep Learning

*Zhongmin Zhang, Cong Ye*

*Page:53-61*

## **Article 9**

Transient Pulse Signal Recognition and Extraction in Particle Accelerator Devices

*YongChang Yin, DongMei Ma, Ye Liu, AnHui Feng*

*Page:62-66*

**Article 10**

Computer Vision Kinematic Detection of Centrifugal Pendulum Vibration Absorber

*Yi Zhang, Jie Qiu, Guangqiang Wu*

*Page:67-72*

**Article 11**

Knowledge Synergy Complement Learning for Multi-Skill Dialogue Generation

*Yikai Ning, Kan Li, Shaojie Qu*

*Page:73-81*

**Article 12**

Textured Surface Defect Detection with Image-Level Accuracy Optimization via Patch-Level Features and Simulation-Based Samples

*Fen Li, Dongxiao Li, Le Huang, Hangrui Chen, Ming Zhang*

*Page:82-88*

**Article 13**

MuHi-Net: Multi-History Perspective Network for Temporal Knowledge Reasoning

*Yongzhan Lu, Shijie Yang, Shaochong Du, Hong Huo, Tao Fang*

*Page:89-96*

**Article 14**

A Dual-Branch Brain Age Prediction Model Based on CNN and Transformer

*Chenhao Fang, Ruipeng Xu, Xiaoyu Xu, Xiaona Wang, Xinglong Wu, Jun Huang, Dengdi Sun, Shuoqiu Gan*

*Page:97-103*

**Article 15**

Feature Selection Method Based on Hybrid Cuckoo Search and Firefly Algorithm for Breast Cancer Prediction

*Chalanwich Teerasarn, Warangkhan Kimpan*

*Page:104-109*

**Article 16**

Research on Multi-Feature Intelligent Prenatal Fetal Monitoring Algorithm Based on the PSO-RF Model

*Xia Mei, Na Feng, Hua Li, Qihe Zhao*

*Page:110-115*

**Article 17**

Rumor Suppression Maximization Algorithm Based on Local Dominance Tree

*Xu Jingke, Zhao Di, Zhou Lei*

*Page:116-122*

**Article 18**

Reinforcement Learning-Based Dynamic Programming Control for Robust Disturbance Rejection and Error Minimization in Dynamic Systems

*Amoh Mensah Akwasi, Haoyong Chen, Junfeng Liu*

*Page:123-129*

**Article 19**

Direct Application of QAOA Algorithm to PUBO Problem

*Junya Wang*

*Page:130-137*

**Article 20**

Hybrid ARIMA and GRNN Model for Accurate Short-Term Water Level Prediction

*Linli Wu, Zhimin Zhang*

*Page:138-143*

**Article 21**

Demand Prediction with Gravity Graph Attention Networks for Shared Bike Systems

*Peigen Zhang, Yujie Du, Ming Jian*

*Page:144-149*

**Article 22**

Classification and prediction-based data mining algorithms to predict visitors to the museum

*Yingrui Chi, Jiaran Zhang*

*Page:150-155*

**Article 23**

Lightweight Voiceprint Recognition with Ghost Convolution and Hierarchical Residual Splitting

*Min Zhang, Andong Sun*

*Page:156-161*

**Article 24**

Prediction Model for Minimum Miscibility Pressure in CO<sub>2</sub>-Oil Based on Automated Machine Learning

*Xiuwei Wang, Tianfu Li, Qingchun Meng, Kun Li, Jinyang Luo, Hongmei Wang, Xiaoying Shi*

*Page:162-166*

**Article 25**

A small-sample bearing fault diagnosis method based on interpretable component energy features

*Bin Wang, Manyi Wang, Yadong Xu, Yilin Jiang, Ming Li, Zhen Li*

*Page:167-171*

**Article 26**

Scene Graph Generation Approach with Integrated Environmental Contextual Information

*Yong Sun, Yin Zhu, Yiran Tao, Binghui Li*

*Page:172-177*

**Article 27**

DSnet: Removing scattered light in biomedical images using a Dual Stream neural network

*Yuanhao Gong, Qianyan Liu, Weichao Lin*

*Page:178-182*

**Article 28**

Document-Level Relation Extraction Based on Distant Supervision for Spring Water Domain

*Chao Liu, Hanshun Zhou, Qi Ding, Hong Yao, Lijun Dong*

*Page:183-188*

**Article 29**

Fine-grained Infectious Disease Surveillance Data Aggregation Scheme in Cloud Computing

*Xiaodong Yang, Yaqi Wang, Shuqian Lian, Chen chen, Xuexia Dai*

*Page:189-194*

**Article 30**

Software Crowdsourcing Allocation Algorithm Based on Publisher Heterogeneous Service Expectations

*Sizhu Fu*

*Page:195-201*

**Article 31**

Compatibility-Based Recommendation Method for Ceramic Pattern Matching

*Jiayu Zhang, Bingxian Ma*

*Page:202-207*

**Article 32**

Low-light Image Enhancement Network Based on Multi-Scale Dual-Domain

*Huili Wei, Xiaozheng Wang*

*Page:208-212*

**Article 33**

Towards Robust Learning based Image Denoising: An Overview

*Shiyue Chen*

*Page:213-217*

**Article 34**

Core Loss Prediction Using a PC-GBT Model Based on Permutation Feature Importance and Grid Search Optimization

*Yunhua Ran, Shaobo Li*

*Page:218-224*

**Article 35**

Logit Adjustment for Imbalanced Cognitive Diagnosis

*Zhengtao Tan, Jimin Bao, Zhuangzhuang He, Dacao Zhang*

*Page:225-233*

**Article 36**

Insurance Risk Factors Based on New Energy Vehicle Monitoring Big Data

*Lina Xia, Puchao Li, Huanhuan Ren, Yu Guan*

*Page:234-238*

**Article 37**

AI for Sustainable Land Management and Greenhouse Gas Emission Forecasting: Advancing Climate Action

*Jack Cutler, Baihua Li, Bashar Alhnaity, Tom Partridge, Mike Thompson, Qinggang Meng*

*Page:239-246*

**Article 38**

Physical Domain Deception Strategy: Experimental Verification of Adversarial Attacks on Vehicle Targets

*Qinghua Dai, Haoqi Gao, Xing Yang, Fanjunzhe Geng, Guangshu Wu*

*Page:247-253*

**Article 39**

PINN based short-term glucose prediction for type 1 diabetes

*Ruijie Pei, Weijie Wang*

*Page:254-259*

**Article 40**

DMPNet: Robust Real-Time Intraoperative Parathyroid Identification via Novel Dual-Modality Fusion Framework of White-Light and Spectral Imaging

*Xuan Wen, Peiliang Lin, Jianming Fan, Jialei Chen, Faya Liang, Yuexin Cai, Xiaoming Huang, Junzhou Chen*

*Page:260-266*

**Article 41**

Knowledge Tracing Based on Memory Mechanism

*Fanglan Ma, Changsheng Zhu, Peng Lei, Xuefang Gong*

*Page:267-272*

**Article 42**

Vector Field Based Algorithm Design for Water Surface Target Spatial Orientation Relation Recognition

*Peiyong Gong, Kai Zheng, Ting Liu, Huixuan Zhao, Yi Jiang, Sun Feng*

*Page:273-278*

**Article 43**

An Improved FastICA Algorithm Using Correction Factors And Lanczos Algorithm For EEG Signals

*Qinghui Zhu, Junqi Huang, Hongyi Zhang, Huaili Jiang, Xingen Gao, Zhengzhe Zhong*

*Page:279-284*

**Article 44**

A deep-learning-based method for pitch shifting and tone complement

*Haiyong Chen, Xiaoman Wang, Chaoyu Zhang, Heng Wu, Chunhua He, Songqing Deng*

*Page:285-290*

**Article 45**

Kernel Functions in CNNs: Enhancing Robustness to Image Noise

*Fengyu Gao, Hong Zhang, Hao Yan, Chien-Hua Chen*

*Page:291-297*

**Article 46**

TransformBioRegressor: A Transformer-based Grassland Biomass Estimator using Multi-source Data

*Fuchang Zhang, Tengfei Bao, Hong Huo, Tao Fang*

*Page:298-305*

**Article 47**

A Multi-layer Composite Radial Basis Neural Network Combined with PINN to Solve Partial Differential Equations

*Honglin Pu, Beibei Wu*

*Page:306-311*

**Article 48**

A U-shape Diffusion Network for Low-Dose CT Image Enhancement

*Jialing Yu, Zhiqi Li, Simin Zhang, Ling Ma*

*Page:312-317*

**Article 49**

MCANet: A Multi-Scale Class-Related Attention Network for Few-Shot Learning

*Yalin Duan, Lixia Xue, Juan Yang, Ronggui Wang*

*Page:318-323*

**Article 50**

Improved Magic Square Transform Combined with Double Random Phase Encoding for Iris Recognition

*Yanna Gao, Xue Zou*

*Page:324-329*

**Article 51**

Learning From Category-attribute Label for Image Attribute Recognition

*Qianhang Guo, Kunyuan Xu, Haoyu Huang, Qiongxiang Ma*

*Page:330-334*

**Article 52**

A High-Performance Scientific Database Supporting In-situ Data Query and Accessing

*Lingbo Peng, Zhiguang Chen*

*Page:335-340*

**Article 53**

A Flexible Model for Predicting Workloads of Massive Microservices

*Shunjue Chen, Xuan Mo, Weigang Wu*

*Page:341-346*

**Article 54**

Fault Diagnosis of Elevator Based on Adaptive Transfer Network

*Bin Zheng*



*Page:347-352*

**Article 55**

Research for Japanese Input Method using Flick in Virtual Reality

*Kantaro Monobe, Masaki Ohishi*

*Page:353-358*

**Article 56**

A new method of contrastive clustering based on fuzzy soft labels

*Bo Feng, Li Yan*

*Page:359-369*

**Article 57**

IgnisGrowth: A Novel Combustion-Growth Inspired Method for Point Cloud Completion

*LiYi Liu, Lu Niu, Yue Wang*

*Page:370-376*

**Article 58**

CD-DVC: Conditional Diffusion Model for Distributed Video Coding

*Zhuang Ye, Qiao Huang, Huanli Tang*

*Page:377-384*

**Article 59**

Gated Fusion based Multi Scale Feature Network for Landmark detection

*Yunhan Wang, Huipeng Yang, Jinming Yang, Jiandong Liu, Fen Chen*

*Page:385-389*

**Article 60**

CiteSpace-based Visualization and Analysis of Support Vector Machines in the Direction of Artificial Intelligence and Machine Learning

*Yixuan Chen, Kechen Wu, Xingcheng Lu*

*Page:390-395*