

Table of Contents

Research and Application of Key Technologies of Intelligent Unmanned Warehousing Based on 5G	1
Hua Zhou, Mingde Huo, Shangyu Tang, Dan Chen, Yi Du, Yan Zhang, Xian Gao	
PS-Based Heterogeneous Computing Framework	6
Xi Guo, Ming He, Shouhao Qin, Dexuan Wang, Chenjun Li	
MoveHelper: Reverse Engineering for Move Smart Contract Bytecode	11
Wenwu Yang, Fang Li, Xi Chen, Ting Chen	
Enhancing the Reinforcement Learning-based Tuning System with a Dynamic Reward Function	15
Na Guo, Wenli Sun, Xiufeng Xia	
LAPAA: A Secure and Lightweight Authentication Protocol for Edge Computing Built on ASCON Algorithm	20
Linghui Zhang, Changli Zhou, Jingliang Wen	
EppNet: Enhanced Pseudo and Point Cloud Fusion for 3D Object Detection	29
Yuren Chen, Xinxin Feng, Haifeng Zheng	
A Multi-UAV Trajectory Planning Algorithm for Time-Sensitive Data Collection	33
Peng Zhang, Baoyu Liu, Sihua Gao, Bingyang Zhao, Weifeng Xu	
Edge Caching with Federated Unlearning in Cluster-Centric Small Cell Networks	37
Lingrui Cui, Pengfei Wang, Yuqi Han	
Short-term load forecasting of industrial park considering time correlation under data-driven	41
Peng Yu, Meng Guo, Rongmao Wang, Hao Wang, Shunjiang Wang	
Microservices Crowdsourcing Platform for Industrial Control Systems	45
Han Wang, Xinyong Peng, Haifeng Zhang, Jie Su, Huiyong Wang, Chunhai Li	
Dynamic Residual Graph Attention Network for Network Intrusion Detection System	53
Song Wang, Zhenming Zhang, Wei Li, Chen Yin, Yu Ma, Weiyao Xu	
Pattern Mining-Based Integrated Prediction Method for Cloud Workload	57
Jinhui Jiang, Xiushuang Yi, Yuting Zhao, Tengsheng Tu	
RB-Net: Rule-Based Neural Networks with Interpretable Models	64
Zhehang Xue, Yangfei Zheng	
Optimization of AGV Scheduling in Automated Terminals Based on Rolling Time-Domain Control	69
Hongxiang Shao, Junbo Ge, Yingqi Xi, Feizhou Zhang, Jiang Li	
A Campus Local Area Network Architecture based on Software Defined Networking	78
Minggui Chen, Yaqi Gu, Yangrui Zhang, Qi Qu	
A Resilient Response Method for DDoS Attacks Based on Deep Learning in NFV	82
Xiaoyang Han, Lin Zhang, Xiangke Guo, Fei Huang, Zhichang Fan	
Positioning and application practice of personal cloud service infrastructure in the computing power network	88
Weijian Li, Xiaoqing Li, Yun Zhang, Yuqiao Chen, Hao Sui	
Network link weight optimization based on anti-symmetric deep graph networks and reinforcement learning	96
Yuhan Chen, Yingya Guo	

ECET: Enhanced Vulnerability Detection through Code Embedding Techniques	100
Guodong Zhang, Zhuo Jin, Tianyu Yao, Jiawei Qin	
An Effective Competency Model for Human Resources Management	104
Ge Qin, Jingbo Zhao, Yu Zhang, Qisheng Chai, Ronghui Yu, Dapeng Qu	
Text Watermarking-Based Federated Learning Backdoor Attack Detection Scheme	109
Yiming Zuo, Zheng Yang, Dongdong Chen, Ke Gu, Luyao Jiang	
Enhancing Multi-UAV Path Planning Efficiency with Security through Integration of Priority-Based Ant Lion Optimization Algorithm	113
Yunchong Guan, Wei Zhi Sturdy So, Su Peng, Yihang Zhang, Yuanhao Zhang, Yang Wang, Fahreza Prima Hakim, Mumtaz Zain Abdullah	
Energy and Effective Computing Contract toward Heterogeneity in Terminal-Edge-Cloud Computing Network	119
Shoufeng Wang, Ye Ouyang, Xin Wang, Lexi Xu, Jianchao Guo, Fan Li, Zhongke Zhang, Xuan Chen, Lianhua Zhang	
Multi-source heterogeneous system security situation deduction based on three-dimensional scenes	126
Feng Gao, Junjie Xia, Rui Rao, Chang Song, Yu Xiao, Mengxiang Han	
A Privacy Protection Scheme for Power Data Based on Blockchain and Privacy-preserving Computation	130
Xuhua Ai, Yuan Yin, Qi Meng, Yiting Huang, Denghao Tu, Yun Dong	
A YOLOv7-based Method for Rapid Detection of Printed Text in Examination Papers	136
Zhong Shao, Jiaxu Lan	
Efficient Complex Event Processing Over Concurrent Event Streams	140
Yidi Yan, Yang Zhang, Guopeng Deng, Yao Sun, Tao Qiu	
A Hybrid Perturbed Secret Sharing Federated Learning Framework	144
Yinglin Feng, Shuhong Chen, Zhaoyi Cheng, Weifeng Su, Tian Wang	
IoT-based Smart Farming System with Security Powered by Solar Energy	148
Yunchong Guan, Fahreza Prima Hakim, Su Peng, Wei Zhi Sturdy So, Haoyang Ge, Muhammad Ridwan Muzaki, Ibnu Khalis Rabbani, Cesare Aprilend Abdi Khaliriz	
Research on DLP 3D printing path planning algorithm based on A*-ACO	152
Jia Yang, Hong Li, Yang Zhao	
Churn Reason Prediction Based on Telecom Operator Data	158
Wei Gao, Yue Wang, Xinzhou Cheng, Lexi Xu, Chuntao Song	
Systematic Analysis of Offline Channel Users Based on Data Fusion	164
Wei Zhang, Yuhui Han, Tianyi Wang, Chen Cheng, Lu Zhi, Tian Xiao, Zixiang Di, Bei Li, Lexi Xu	
A Novel Application of Wireless Resource Intelligent Allocation Function for 5G Uplink Enhancement Technology	170
Tian Xiao, Bei Li, Zixiang Di, Wei Zhang, Lexi Xu, Chen Cheng, Guanghai Liu, Xinzhou Cheng	
Root Cause Localization of Poor Voice Call Quality Based on Probabilistic Knowledge Graphs	177
Zhipu Xie, Bin Yang, Huiying Zhao, Yue Wang, Xin Wang, Lexi Xu	
Enhanced Wireless Technology Recognition Method Using Energy-Efficient Spiking Neural Networks	183
Lifan Hu, Yu Wang, Xue Fu, Hao Huang, Shengnan Shi, Lantu Guo, Yun Lin, Guan Gui	

Public Risk Perception Explains the Mitigation of COVID-19	188
Siyu Lai, Tong Wang, Ziqiang Cao, Mengsi Cai, Suoyi Tan, Jianguo Liu, Xin Lu	
Design of a High-Reliability Internet of Things System Based on Fiber Optic Communication	194
Xinyi Chen, Wei Li	
Research on Service Capability of Data Platform Suppliers	200
Yanmei Liu, Pengwei Ma, Weiwei Pang, Jiafeng Tian, Zhuo Wang, Yuan Liu	
A Method for Detecting Post-Exploitation Malicious Communication Traffic Based on Hypergraph Neural Networks	205
Songlin Liang, Wei Lin, Ding Li, Yu Liu	
Lightweight U-networks for imaging through scattering medium using a small number of data samples	211
Mingguang Shan, Naiquan Liu	
Multi-text Attribute Embedding for Social Network User Alignment	215
Jinyang Liu, Jiaying Fan, Liming Wang	
Efficient Broad Learning Approach for Automatic Dependent Surveillance-Broadcast System	219
Chenhan Hu, Lifan Hu, Xiaxia Ding, Yibin Zhang, Yang Peng	
Comprehensive Influence-Based Social User Hiding Scheme in Overlapping Community Networks	225
Jian Liu, Ke Gu, Yang Deng, Jiaqi Lei	
Emergency Events-Based Users Privacy Protection Scheme in Social Networks	230
Yongkang Li, Yiming Zuo, Ke Gu, Yang Deng, Jian Liu	
Community Topic Propagation Prediction-Based Malicious User Detection Scheme in Overlapping Community Networks	234
Yang Deng, Jian Liu, Ke Gu, Dongdong Chen, Yongkang Li, Luyao Jiang	
An SDN Traffic Engineering Approach Based on Traffic Unsupervised Contrastive Representation and Reinforcement Learning	239
Ruiyu Yang, Qi Tang, Yingya Guo	
Multimodal Knowledge Graph for Database Alarm based on Enhanced Fusion Strategy	243
Dequan Gao, Jiwei Li, Bao Feng, Zhifan Wang, Xuewei Ding, Linfeng Zhang	
Cognitive radio spectrum allocation based on improved quantum genetic algorithm	248
Xia Zhao, Tongbing Yang, Dongyue Liu, Hai Shen	
Database Alarm Reasoning with Event Knowledge Graph Based on Graph Attention Network and Dynamic Pattern Matching	255
Dequan Gao, Jiwei Li, Xuewei Ding, Bao Feng, Zhifan Wang, Linfeng Zhang	
Incentives for Clustered Federated Learning in 5G Networks: Considering Data Heterogeneity	263
Hao Zhang, Donglan Liu, Xin Liu, Rui Wang, Lili Sun, Fangzhe Zhang, Fuhui Zhao, Shanjie Xu, Weicong Zhang	
A Novel Deep Packet Inspection Method for Polymorphic Network	268
Meiting Xue, Kainuo Ni, Yan Zeng, Yuyu Yin, Baokang Zhao	
MMLT: A Novel Multimodal Lightweight Convolutional Transformer for Fault Diagnosis with Imbalanced Data in IoT	272
Xiguang Li, Shan Shi, Xiaoming Zhou	

A Virtual Cryptographic Card Resource Sharing Method Based on Lottery Scheduling Optimization Algorithm	278
Yi Gao, Daoyu Wang, Jing Xia, Xixi Fu	
NR-GAT: A network risk assessment method based on graph attention networks	286
Hao Feng, Haijin Liu, Fei Hao, Lianghao Lv, Zhaorui Ma, Xinhao Hu, Shicheng Zhang	
Research on the connection method of photovoltaic data transmission network based on domestic trusted module	294
Junwei Zhang, Ke Zhou, Xiankui Wen, Yu Fu, Mingjun He, Yang Yu	
Recovery Method of Missing Multivariable Time-varying Data Associated with Damaged Sensors by Graph Convolution Networks for Edge-computing based Industrial Internet of Things	301
Guizhen Wang, Zening Zhang, Chenglin Bai, Lishan Yang	
Research on Data Management Model of Customer Service System Based on the Theory of Smart Contract	306
Ying Shen, Yi Han, Xingzhou Yang	
Research on polymorphic network Fusion Scheme Based on Scenarios	311
Bei Li, Tian Xiao, Zixiang Di, Xueru Zhang, Donghai Huang, Guanghai Liu, Lexi Xu, Xianfu Shi, Hangbo Zheng	
Road Path Recommendation Method Based on Mobile Communication Network Quality	317
Zixiang Di, Bei Li, Xinzhou Cheng, Jiajia Zhu, Tian Xiao, Lexi Xu, Guangbin Li, Pei Wang, Fengxian Wan	
Secure Sharing and Integrity Assurance of Data in Smart Grids	322
Xuhua Ai, Yun Dong, Yiting Huang, Qi Meng, Fawang Teng, Yuan Yin, Zefeng Cao	
Visualized Node Detection-Driven Shipping Network Construction and Ship Trajectory Clustering	328
Chu Han, Shiqi Zhou, Chentao Xu, Huigang Qian	
Federated Learning Algorithm Based on Adaptive Gradient Fusion	334
Haijun Su, Mengyuan Zhu, Xi Guo, Guoqing Li, Qian Zhang, Tao Shen	
A Novel Energy Saving Algorithm for Network Deep Learning Tasks	339
Xin Wang, Yue Wang, Chen Cheng, Zhipu Xie, Wei Gao, Xinzhou Cheng, Lexi Xu, Yongtao Tan, Jing Tong	
A Method for Parameter Updating in Distributed Deep Learning	344
Ming He, Xi Guo, Dexuan Wang, Shouhao Qin	
A Secure Video Compression Mechanism Based on Chaos Cryptography and Deep Learning Network	349
Kai Li, Jiao Wan, Zhiwei Xiang, Meihui Hu, Jinping Cao	
DENIMS: A Distance-Driven Learned Index for Multi-Dimensional Skewed Data	355
Na Guo, Haonan Jiang, Xiufeng Xia	
Data Driven-based Motion Artifact Detection from Brain Computed Tomography Images	360
Yiwen Liu, Tao Wen, Zhenning Wu, Tao Qiu	
Research on Optical Mineral Image Recognition Based on Federated Learning	364
Zhenzhou Guo, Ao Liu, Rongchang Dong	
MAGIC: Memory Advanced General Index Compression for Learned Indexes	370
Na Guo, Yaqi Wang, Xiufeng Xia	

A Mixed Traffic Flow Model of Partially Connected and Automated Buses and Cars on the Transit Corridor	375
Xin Li, Binbin Qin, Tianqi Wang, Weihan Xu, Yun Yuan	
K-Regret Query Algorithm over Streaming Data	380
Yunzhe An, Kai Chen, Rui Zhu	
Research on Mining Potential Livestreamers Based on Big Data Analysis	384
Lei He, Yuhui Han, Qingqing Zhang, Lexi Xu	
Efficient Deep learning-based Real-time Migration Strategies for Containers in SDN	390
Shan Huang, Yanan Liu, Yanuo Li, Feili He, Xiaodong Duan	
Multi-test knowledge tracing prediction model based on learning cycle	398
Yifei Zhang, Jiajin Zhang, Kaijun Guan	
EFSNet: A Threat Detection Method Based on System Event Feature Sequence	403
Qing Yang, Jiancheng Wang, Jinlong Fei, Qingzhou Yang, Ding Li	
Research on Flow Load Balance Scheduling Strategy in SDN based on Reinforcement Learning	409
Xuetian Xu, Tonghao Zou	
Multipath estimation algorithm based on improved MEDLL	414
Wentao Fu, Xi Deng, Jiayuan Zhang, Youming Li	
Traffic flow prediction based on linear expansion of Spatio-Temporal graph convolutional networks	420
Shijie Du, Duo Mei	
Traffic Flow Prediction Based on Dropout Regularization and Spatial-Temporal Synchronous Graph Convolutional Networks	424
Guowei Ren, Duo Mei	
A Data Quality Quantitative Evaluation of Marine Policy Based on PMC Model	428
Yunxing Zhao, Yize Song, Deyan Hu, Hongyong Qu, Qi Zhou, Yanwen Zhuang, Weixue Zhao, Jiabei He, Fengjie Xu, Liyong Wang, Qiang Zhao, Zuozhen Jiang, Ke Ke	
Fod Tracking Algorithm Based on Detection Box Matching	432
Zheng Liu, Chence Guo, Xiaoke Huang, Jianwei Ye	
USRD: User-Searchable and Revocable Data Sharing Scheme in Multi-Fog-IoVs	439
Luyao Jiang, Yongkang Li, Dongdong Chen, Ke Gu, Yiming Zuo	
GPMBC-FZ: A Query Optimization Method in Distributed Database	444
Yan Du, Zhiming Ding	
Data Catalogs with Artificial Intelligence and Active Metadata: A Case Study of China Mobile	453
Jibin Wang, Yanmei Guo, Yong Jiang, Jing Shang, Zhuo Chen, Yu Liu, Qingyuan Hu, Zheng Yin	
Research on Forecasting the Throughput of Hainan Ports	459
Zhanliang Liu, Zhuoni Fan	
Open-vocabulary 3D Semantic Understanding via Affinity Neural Radiance Fields	464
Yujie Fan, Huan Luo	
Text Guided Road Marking Point Cloud Completion	468
Xu He, Qihong Xu, Huan Luo	
Spatial-temporal forecasting of environmental variables using time series analysis and spatial data integration	472
Fangpeng Qiao, Jun Cheng, Hanlin Mo	

BatchUp:A Feature Space-Level Multi-Data Mixing Technique for Convolutional Neural Network Rongxin Li	478
A NLP-based method for extracting temporal dimension features from unstructured high-dimensional big data Peiyi Wei	482
Ncrypt data stream identification method based on DBSCAN intelligent model Yan Zhang, Yuwen Huo, Dan Chen, Hua Zhou, Mingde Huo, Yi Du, Yanqin Chen, Lexi Xu	486
Research on Expressway Traffic Flow Prediction Based on TGCNRU Fanchang Kong, Duo Mei	491
Multi-label Classification based on Centroid Nearest Neighbor Hybrid Sampling Strateg Xiang Zhang	495
Author Index	500