2025 International Conference on Data Management and Computer Science (ICDMCS 2025)

Nanjing, China
5-7 December 2025

IEEE Catalog Number: CFP252BK-POD
ISBN: 979-8-3315-7234-1

IEEE
Advancing Technology for Humanity

Copyright © 2025, 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:	CFP252BK-POD
ISBN (Print-On-Demand):	979-8-3315-7234-1
ISBN (Online):	979-8-3315-7233-4

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

Design and Simulation of a Component-Based Task Scheduling Model for Multi-Layer Heterogeneous Radio Platforms 1
Zongfu Xie, Yizhe Zhang, Fei Gao, Yawei Ji, Yue Wang, Tiancheng Ma

Intelligent Enterprise Unattended Vending System Design and Implementation Using Computer Vision and Data Analytics 7
Lidong Xie, Jingyu Zhan, Xue Song, Jingyuan Zhang, Lipeng Ru

Practical Research on Vector Retrieval Commodity Purchase Behavior Discrimination System with Multi-module Linkage 12
Lidong Xie, Zhiwei Cai, Pengguo He, Xue Song, Jiarong Fan

Evaluation Model for Integrating New Era Cultural Thought into Ideological and Political Courses Using BERT Sentiment Analysis and XGBoost Algorithm 17
Ying Li, Jiaqi Liu, Yantao Li, Wei Ji

Analysis of Online Public Opinion on Public Health Emergencies Based on the Epidemic in Shanghai 21
Xinqi Hu, Yuanyuan Wei, Yuxuan Bai, Hongwei Lin, Ziqi Su, Jingxin Wang, Ting Xiang, Ran Su, Bingke Zhu

QMIX-based Multi-agent Reinforcement Learning System for Collaborative Optimization of Course Content and Teaching Strategy in Ideological Courses 29
Lanlan Ruan

From Guqin Jianzipu to Staff Notation: Design of a Pitch Generation Algorithm Based on Analysis of String Order and Hui Positions 35
Chenghong Wang, Yu Huang, Shuai Chen, Haodong Sun, Fuxing Liu, Jiayi Liu

GPT-2 Pre-trained Model and Prompt Learning Based Zero-shot Opinion Classification for Modern Chinese Newspapers 44
Xiaobo Zhou

Intelligent Processing and Optimization of Large-Scale Real-Scene 3D Data for Digital Twin Applications: A Framework for Standardization, Fusion, and Efficient Rendering 48
Chengkun Liu, Linjie Guan, Xueyu Wu, Gang Zhu

A Blockchain-driven and Verifiable Collaborative Paradigm for Federated Learning 52
Fei Chen, Yi Li

LSTM and Its Enhanced Models Empower Digital Twin Supply Chain: Research Progress on Procurement Collaboration Optimization and Data Integration Applications 56
Borui Xie, Yuhui Wang, Sining Xv, Qianjun Yang, Zhifeng Shan

The Multi-Modal Recommendation System Based on Behavior Benchmark Adjustment and Modality Balance 65
Qinghong Jin, Weiqian Li, Jinguang Chen

Research on the Characteristics of Risk Assessment Subjects in Engineering Projects Based on K-means Clustering Analysis 70
Li Tan, Yang Song

A Facial Expression Recognition Method That Combines Deep Learning And LBP Mode 75
Xianguo Wang, Chunxi Guan, Xiangyu Song, Liusheng Lai, Zhiming Lei, Junfeng Xuan

Ship Route Planning for Port Transit Based on an Improved A-star Algorithm 80
Fujin Niu, Zhongjie He, Yinfei Zhou, Lihua Zhang

RoboChain: A Blockchain-Powered Decentralized Training Framework for General-Purpose Robots 87
Jingli Mu, Kun Wang, Qibin Liu

Research on a Component-Level Measurement and Valuation Model for Prefabricated Substations Based on BIM and Quota 92
Chao Ge, Ping Zhang, Qi Xue, Xiaoyu Zhou, Yishu Fu, Jiannan Li, Xiaodong Yang