Table of Contents

Research on the Application and Collaborative Mechanism of Distributed Simulation Technology in Cross - Regional Police Joint Tactical Drills 1

Cui Jianjun

Optimization of Gradient Vanishing Problem in Deep Neural Networks Based on Attention Mechanism 6

Wu Nannan

A Study on the Value-Added Evaluation of Digital Competence of University Teachers Based on AHP and Regression Models in the Context of Digital Education 11

Yiwen Cao, Lin Zhang, Jinghao Yang, Zihao Sun, Wenhao Wang, Jianjun Liu

Genetic Algorithm-Based Crop Planning Optimization: A Modeling Study on Price Sensitivity and Crop Rotation Constraints 20

Shiqi Cui, Yaqiang Sui, Yan Wang

Feasibility Analysis Study of Organic Agro-Ecosystems Based on Logistic Growth Models 30

Zhudi He, Qiaodao Jiang, Zihan Wang

Research on Enterprise Production Decision-Making Based on Simulated Annealing Algorithm 38

Zi'an Lin

Optimizing the Shanghai Second-Hand Housing Price Prediction with CNN Model 47

Xiaoyang Li

Construction and Early Warning Research of Water Quality Pollution Grading Prediction Model Driven by Multi-Source Data 56

Zhangxin Huang, Liangfan Lin

Enhancing Task Performance Through Human-AI Collaboration: Examining the Moderating Effects of Performance Expectancy and Task Structure on Generative AI Effectiveness 65

Jiayang Sun, Qingya Liu, Yihan Li

Sunspot Prediction Model Based on BiLSTM Network 71

Shubin Zhang

Strategies for Enhancing the Mechanical Properties of Hydrogels in Bone Tissue Engineering 78

Wencao Wang

KDM5 Family as a Therapeutic Target in Breast Cancer: Mechanisms and Clinical Potential **86**

Kefan Hu

Study on Application Strategies for Surface Modification to Optimize Biocompatibility of Medical Magnesium Alloy Implants **93**

Yanbo Tong

Motor Imagery Recognition Based on Spiking Neural Networks **100**

Dawei Yan

Research on the Historical Interaction Trends of European Literature and Music Based on a Multimodal Large Language Model **106**

Ziyu Li

Mathematical Modeling of Short-Term and Long-Term Economic Impacts of U.S. Semiconductor Reshoring Policies: A Multi-Model Analysis of Supply Chain Dynamics and Strategic Benefits **112**

Jianing Zhang

AlphaFold-Driven Structural Optimization of COX-2 Inhibitors: Enhancing Safety and Selectivity for Feline and Canine Veterinary Therapeutics **122**

Yining Zhang

AI-Enhanced Mobile Breast Cancer Screening: Bridging Rural-Urban Disparities in Gynecological Healthcare Access **131**

Chenjue Yu

Mathematical Modelling of Long-Wave for Interfacial Waves in Two-Layer Fluids Based on the Dirichlet-Neumann Operator **140**

Hanxi Wei

Cross-Disciplinary Analysis of Soil Nutrient Dynamics under Non-Priority Ancient Trees in Shijingshan Moshikou, Beijing: Connecting Urban Ecology to Public Health and Nutrition **148**

Boqin Li

A Spatial Feature Attention Enhanced Facial Action Unit Detection Model for Analyzing the Effects of First Language on Facial Muscle Movements **167**

Mohan Yu

InstaGuard: An Intelligent Skating Protection System **174**

Xiangyi Li

Martial Arts Pose Estimation via Combined Convolutional and Graph Neural Networks **181**

Jiawen Zhang

Research Progress and Prospects of Hydrogen Production via Water Electrolysis **188**

Hao Liu

A Survey on the Applications of Reinforcement Learning in Computer Vision and Natural Language Processing Introduction **198**

Runxi Kang

Autonomous Driving Environmental Perception and Decision-Making Technology Roadmap Comparison **215**

Zhiyuan Wen

Study on the Application Strategy of Microbial Community Structure Optimization in Industrial Wastewater Treatment **228**

Ziyi Li

"Research Progress and Application Prospects of Iron-Based Hydrogen Evolution Catalysts" **235**

Hao Liu

Preparation of Conductive Polymer Based Composite Materials and Their Electrophysiological Response in Myocardial Tissue Repair **247**

Zhanhao Hu

Research on Optimization Application Strategies of Phase Change Materials in Lithium Battery Thermal Management Systems **256**

Xiaozhu Wu

Adaptive Acoustic Resonator System for Cross-Cultural Performance Spaces: Multi-Device Optimization for Bridging Eastern and Western Musical Traditions **264**

Shanwei Lin

Research on the Basic Combination of Elementary Number Theory and Encryption Algorithm **285**

Yejun Wu, Hongli Yang

Research on Adaptive Control and Precision Optimization Technology of Industrial Robot for Intelligent Manufacturing **291**

Wenjie Chen

Research on University Students' Organizational Activities Optimization and Decision Support System Based on Big Data **296**

Meng Xie

Statistical Modeling and Application Exploration of Unstructured Data Based on Deep Learning **302**

Fei Yin

Research on Key Technologies of Data Perception and Intelligent Scheduling for Smart Cities Empowered by Artificial Intelligence **308**

Xiaoxuan Zhang

Ecological System Construction Path of Intelligent Organization Construction Integrating Artificial Intelligence Technology **314**

Huafeng Zhang, Li Chen, Bin Zhu, Shaobo Liu, Yixuan Chen

Modeling of Member Behavior Data and Evaluation System of Organizational Capability in the Smart Organization Construction Platform **319**

Wenrui Zhang, Li Chen, Bin Zhu, Shaobo Liu, Juntai Shi

Research and Application of Intelligent Recommendation System Algorithms Based on Deep Reinforcement Learning **325**

Shang Ma

Advances in corrosion protection and integrity of Produced water reinjection wells tubing in oil and gas field **331**

Yun Ma, Ruize Niu, Wei Tian, Yacong Yang, Li Li

Study on Control Strategy of Impurity Elements and Influence of Mechanical Properties during Hot Working of Regenerated Titanium Alloy TC4 **346**

He Xiaoying, Yan Fang, Fu Wei

Application and Research of Computer Network Multicast Algorithm Based on GA **352**

Yafang Li

The Design of Upper Computer Integration Software in Radar Working Status On-Line Monitoring System **358**

Cun Xie, Peiwen Ye, Yuhui Wang, Mian Tang