

**2025 2nd International
Conference on Informatics
Education and Computer
Technology Applications
(IECA 2025)**

**Kuala Lumpur, Malaysia
17-19 January 2025**



IEEE Catalog Number: CFP25VJ8-POD
ISBN: 979-8-3315-3570-4

**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:	CFP25VJ8-POD
ISBN (Print-On-Demand):	979-8-3315-3570-4
ISBN (Online):	979-8-3315-3569-8

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

2025 2nd International Conference on Informatics Education and Computer Technology Applications (IECA) **IECA 2025**

Table of Contents

Preface	v
Committee	vi

IECA 2025 Articles

Big Data-Driven Precision in Teacher Digital Competency Training: Application Framework and Operation Guarantee	1
<i>Lei Wang (Guangdong University of Science and Technology)</i>	
Using GCN to Perform Code Dependency Analysis and Defect Prediction in Software Engineering Maintenance	5
<i>Tao Sun (Xidian University)</i>	
Intelligent Q&A System for Signals and Systems Based on Multimodal Knowledge Graph	9
<i>Runfang Hao (Taiyuan University of Technology), Fengmei Liang (Taiyuan University of Technology), Yongqiang Cheng (Taiyuan University of Technology), and Hairong Jia (Taiyuan University of Technology)</i>	
Research on the Practice of Information Technology-Assisted TCM English Teaching Based on the Production-Oriented Approach	14
<i>Liqin Wu (Hunan University of Medicine) and Penghui Yu (Hunan University of Medicine)</i>	
Multi-head graph attention network for human pose recognition	20
<i>Yingyin Fan (Guangdong University of Education), Jie Tan (Guangdong University of Education), Wanyi Li (Guangdong University of Education), and Jialing Wu (Guangdong University of Education)</i>	
Developing a Nonlinear Learning Agent Model Driven by Generative Artificial Intelligence	26
<i>Dan Zhao (Shandong Vocational University of Foreign Affairs) and Yuan Lin (Shandong Vocational University of Foreign Affairs)</i>	
A Study on the Characteristics of New Immigrant Technology Talents Returning to China from Universities in the Guangdong Hong Kong Macao Greater Bay Area: A Case Study of 247 Highly Cited Scholars' Resume Data	30
<i>Xiao Yan (Jinan University) and Xuan Wu (Jinan University)</i>	

Orthogonal Wavelet Transform Weighted Multi-Modulus Blind Equalization Algorithm based on Immune Chaos Optimization Algorithm	37
<i>Jing Sun (Anhui Xinhua University), Md Gapar Md Johar (Management & Science University), and Jacqueline Tham (Management & Science University)</i>	
Employing Gamification Teaching Method to Enhance Adult Undergraduates' Academic Achievement in a Chinese Literature Course: A Data Analysis Based on SPSS	43
<i>Xuemin Zhao (Foshan Open University) and Tan Choon Keong (Segi University)</i>	
The Application of Computer Simulation Technology in Sociological Research: A Case Study of Urban Development Models	48
<i>Lei Wang (Chengdu Polytechnic)</i>	
Research on Personalized Learning Content Generation and Recommendation Technology Driven by Large Language Models	53
<i>Bo Zhang (Hubei University), Ruixi Wan (Hubei University), Yixuan Chen (Hubei University), Zhiqiang Fang (Hubei University), Min Li (Hubei University), and Chuanxiang Ma (Hubei University)</i>	
Harnessing Large Language Models for College-Level English Language Assessment: Opportunities, Challenges, and Future Directions	58
<i>Jiali Lin (Shantou University) and Jian Li (Guangdong University of Technology)</i>	
Using Time Series Analysis to Predict the Long-Term Impact of Moral Education on Student Behavior	64
<i>Yanying Wang (Changchun Humanities and Sciences College)</i>	
Data-driven Constructive Approaches and Translation Strategies for the Chinese Medicines in Chongqing University of Chinese Medicine	69
<i>Xiaoqing Hu (Chongqing University of Chinese Medicine) and Xiangjin Wang (Gannan Normal University)</i>	
Technology and application of digital art style transfer based on deep learning	74
<i>Hongxia Jiang (Beijing Information Technology College)</i>	
Dynamic Adaptive Graph Convolution with Attention for Skeleton-Based Action Recognition	79
<i>Rundong Zhou (Chongqing Jiaotong University) and Jiawei Wang (Chongqing Jiaotong University)</i>	
An improved artificial bee colony algorithm for community detection in signed networks	83
<i>Shiwei Che (Liaoning University of Science and Technology), Jia Tian (Liaoning University of Science and Technology), Guixi Chen (Liaoning University of Science and Technology), and Houda Lu (Liaoning University of Science and Technology)</i>	
Construction of College English Flipped Classroom Model Based on SPOC and Mobile Smart APPs ---- An Empirical Analysis Based on Structural Equation Modeling	92
<i>Yuxiu Weng (Chengyi College of Jimei University)</i>	
Knowledge Graph and AI Workbench of Superstar Platform Empower the Digitization of Discrete Mathematics Course	98
<i>Kailong Wu (Hangzhou Dianzi University Information Engineering College), Haoyang Lv (Hangzhou Dianzi University Information Engineering College), Teng Zhao (Zhejiang Fanya Education Technology Co., Ltd), and Zhihai Sun (Hangzhou Dianzi University Information Engineering College)</i>	

Application of Deep Reinforcement Learning Algorithm for Adaptive Learning Path Planning in Immersive Learning Environment	103
<i>Jinrong Li (Changchun Humanities and Sciences College)</i>	
COA-CNN-LSTM-based demand forecasting for spare parts	108
<i>Xiaowei Zhang (The Fifteenth Research Institute China Electronics Technology Group Corporation), Wentao Dong (The Fifteenth Research Institute China Electronics Technology Group Corporation), Zining Kong (The Fifteenth Research Institute China Electronics Technology Group Corporation), Wei Cui (The Fifteenth Research Institute China Electronics Technology Group Corporation), Shitai Zhang (The Fifteenth Research Institute China Electronics Technology Group Corporation), Yuanyuan Lin (The Fifteenth Research Institute China Electronics Technology Group Corporation), and Yucai Dong (The Fifteenth Research Institute China Electronics Technology Group Corporation, Beijing)</i>	
Investigation of Lifelong Learning Research Hotspots and Trends: A Bibliometric Analysis Based on CNKI Core Journals	114
<i>Wenjing Zhang (Nanjing City Vocational College)</i>	
Personalized Learning in College English Education: Leveraging Large Language Models for Adaptive Instruction	119
<i>Jiali Lin (Shantou University) and Jian Li (Guangdong University of Technology)</i>	
Construction of Foreign Trade English Corpus Based on Autonomous Learning Platform	126
<i>Xi Guo (Guangdong Nanhua Vocatoinal College of Industry And Commerce)</i>	
Research on the Construction and Application of Intelligent Recommendation Model for Students' Career Planning Based on Artificial Intelligence	130
<i>Xiangwei Qin (Xi'an Eurasia University), Hongfei Hu (School of Xi'an Eurasia University), and Zhou Dong (School of Xi'an Eurasia University)</i>	
Research on Teaching Evaluation and Learning Achievement Analysis Model Based on Machine Learning	135
<i>Qiang Jiang (Shandong Bussiness Institute) and Mengyao Shi (Shandong Bussiness Institute)</i>	
Research on Temporal Action Localization in Videos Based on Multimodal Deep Learning	140
<i>Peng Yuan (Beijing Institute of Technology)</i>	
A Study on the Effectiveness of Vocal Performance Teaching with the Support of Big Data Technology	145
<i>Chuanwen Dai (Chopin University of Music)</i>	
Multi-Dimensional Analysis Model of College Students' Employment Market Based on Multi-Task Learning	149
<i>Yong Pan (Binzhou Polytechnic), Hongliang Hu (Binzhou Polytechnic), and Wenxin Zhang (Binzhou Polytechnic)</i>	
Development and Evaluation of Artificial Intelligence Driven Interactive System for Online Education	155
<i>Yuhong Zheng (Guangdong University of Petrochemical Technology)</i>	
Research on Educational Interactive System Based on Computer Big Data	159
<i>Feng Ding (Chongqing Medical and Pharmaceutical College) and Daohai Lei (Chongqing Medical and Pharmaceutical College)</i>	

Research and Implementation of a Data Analysis Platform for the Current Situation of Traditional Chinese Medicine Culture in Primary and Secondary School Teaching	165
<i>Xiaoru Xu (Changchun University of Chinese Medicine), Tongtong Jiang (Changchun University of Chinese Medicine), Jianxun Zhu (Changchun University of Chinese Medicine), and Nan Wang (Changchun University of Chinese Medicine)</i>	
Questionnaire Design, Survey and Analysis of Online Shopping Status for Vocational Students Based on Big Data Technology	170
<i>Zhili Bi (Binzhou Polytechnic), Dongming Sun (Binzhou Polytechnic), Changyong Lin (Binzhou Polytechnic), Xue Zhang (Binzhou Polytechnic), and Xuehui Ding (Binzhou Polytechnic)</i>	
The Application of Python in Teaching Probability Theory and Mathematical Statistics	174
<i>Dongyang Zhang (Bohai University) and Chi Song (Liaoning University)</i>	
Author Index	179