# **2022 2nd International Conference** on Big Data Engineering and **Education (BDEE 2022)**

Chengdu, China 5 – 7 August 2022



IEEE Catalog Number: CFP22L23-POD **ISBN:** 

978-1-6654-8185-4

#### **Copyright © 2022 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:    | CFP22L23-POD      |
|-------------------------|-------------------|
| ISBN (Print-On-Demand): | 978-1-6654-8185-4 |
| ISBN (Online):          | 978-1-6654-8184-7 |

#### 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



## 2022 2nd International Conference on Big Data Engineering and Education (BDEE) BDEE 2022

#### **Table of Contents**

| Preface   | xi  |
|-----------|-----|
| Committee | vii |

#### Data Analysis and Mining

| Non-Technical Competency Assessment for the Initial Flight Training Based on Instructor       1         Jiayuan Li (Civil Aviation Flight University of China, China), Hong       1         Sun (Civil Aviation Flight University of China, China), Fan Li (Civil       1         Aviation Flight University of China, China), Fan Li (Civil       1         Aviation Flight University of China, China), Weiwei Cao (Civil       1         Aviation Flight University of China, China), and Huiyun Hu (Civil       1         Aviation Flight University of China, China)       1 |
|---|
| The Study on Quality Evaluation System of Graduate Education in the Era of Big Data   |
| <ul> <li>Overview of Application in Data Mining Techniques to QAR Data Ansys</li></ul>  |
| Abnormal Financial Big Data Based on Deep Neural Network Recognition Methods  |

### Aviation Data Analysis and Management

| <ul> <li>Evaluation for Trainee Pilot Workload Management Competency During Approach Phase Based on</li> <li>Flight Training Data</li></ul> |
|---|
| Research on Performance Analysis of Aero-Engine Based on QAR Time Series Data   |
| Design and Practice of a Flight Data Application System   |
| <ul> <li>Design and Implementation of Flight Vision Simulation System Based on Flight Training Data and Flightgear</li></ul>                |

### Information System Construction and Analysis

| <ul> <li>Ontology-Based Recommender System with Descriptive Analytics in e-Commerce</li> <li>Su-Cheng Haw (Multimedia University, Malaysia), Lit-Jiew Chew</li> <li>(Multimedia University, Malaysia), Kok-Why Ng (Multimedia University, Malaysia), Palanichamy Naveen (Multimedia University, Malaysia),</li> <li>Arfive Gandhi (Telkom University, Indonesia), and Ati Suci Dian Martha</li> <li>(Telkom University, Indonesia)</li> </ul> | 47 |
|---|----|
| Research on the Influencing Factors of the User Information Cocoon Effect of Short Video  |    |
| Platforms Based on Personalized Recommendation Algorithms   | 53 |
| Jinglei Wang (Sichuan Agricultural University, China) and Ruirui Zhang  |    |
| (Sichuan Agricultural University, China)  |    |
| Construction and Application of Intelligent and All-Factor Territorial Development  |    |
| Regulation Model  | 61 |
| XueFei Wang (Information Center of Ministry of Natural Resources of   |    |
| the P.R.C, China), FanRong Meng (Information Center of Ministry of  |    |
| Natural Resources of the P.R.C, China), ZeHui Li (Information Center  |    |
| of Ministry of Natural Resources of the P.R.C, China), KongYi Wu  |    |
| (Information Center of Ministry of Natural Resources of the P.R.C,  |    |
| China), and DengKui Kong (Information Center of Ministry of Natural   |    |
| Resources of the P.R.C, China)  |    |

| Positive and Negative Influence Factors in Users' Willingness of Mobile Payment in Taiwan  | 57 |
|--|----|
| A Bibliometric Analysis of the Hot Spots and Frontiers of Algorithmic Governance Research<br>in China and Internationally  | 72 |
| <ul> <li>Fine Dining Restaurants and e-Business Development as a Development Strategy under</li> <li>Covid-19. The Case of Latin America's 50 Best Restaurants 2020-2021</li></ul> | 79 |
| Identifying Enablers and Barriers to Achieving Business-IT Alignment Through Enterprise<br>Architecture Practice   | 84 |

### Flight Simulation and Training

| <ul> <li>Research on CNN-BiLSTM Flight Training Slope Prediction Based on Attention Mechanism</li></ul>   |
|---|
| <ul> <li>Physiological Responses of Pilots' Different Turning Behavior Based on a Flight Simulator</li> <li>and fNIRS</li></ul>   |
| Core Competency Evaluation of Pilot Based on Analytic Hierarchy Process   |
| Research on TCAS Warning Factors Between Transportation and Training Flights Using         Monte-Carlo Simulation       115         Wei Jun Pan (Civil Aviation Flight University of China, China), Ya       115         Xing Xu (Civil Aviation Flight University of China, China), and Jing       Kai Wang (Civil Aviation Flight University of China, China) |

| Evaluation of Lateral Safety Distance of between UAVs in Hybrid Operation Mode Based on |     |
|---|-----|
| CNS Performance   | 120 |
| Chao Zhou (Civil Aviation Flight University of China, China), Kun Hu                    |     |
| (Civil Aviation Flight University of China, China), Fang-wen Zhou                       |     |
| (Civil Aviation Flight University of China, China), Tian-tian Zhao                      |     |
| (Civil Aviation Flight University of China, China), Xing-yu Zhu (Civil                  |     |
| Aviation Flight University of China, China), and Feng Ouyang (Civil                     |     |
| Aviation Flight University of China, China)   |     |
| Research on Pilot Control Ability of Drones in Medium and Large Branch Logistics        | 125 |
| Chao Zhou (Civil Aviation Flight University of China, China), Tiantian                  |     |
| Zhao (Civil Aviation Flight University of China, China), and Kun Hu                     |     |
| (Civil Aviation Flight University of China, China)                                      |     |

#### Flight Scheduling and Managment

| <ul> <li>Evaluation of Air Traffic Support Capability of Small and Medium Airport Based on Entropy and Cloud Model</li> <li>Weijing Sun (Civil Aviation Flight University of China, P. R. China),</li> <li>Weizhen Tang (Civil Aviation Flight University of China, P. R. China),</li> <li>Jun Li (Civil Aviation Flight University of China, P. R. China),</li> <li>Qianrong Yu (Civil Aviation Flight University of China, China), and</li> <li>Changhao Cheng (Civil Aviation Flight University of China, P. R.</li> </ul> | 129 |
|---|-----|
| A Review of Flight Delay Prediction Methods   | 135 |
| <ul> <li>Study on Flight Landing Time Prediction in Complex Terminal Areas</li></ul>  | 142 |
| Effect of Video Game Training on Air Traffic Controller Cognitive Capability  | 147 |
| <ul> <li>Task to Competency: From the Perspective of 13th Hour Aptitude Testing</li></ul>   | 152 |

#### **Computer Vision and Imaging**

| Experimental Platform Design of Extracting and Analyzing Structural Features of Dorsal |
|--|
| Hand Vein Infrared Image   |
| Peirui Bai (Shandong Üniversity of Science and Technology, China), Lin                 |
| Cui (Shandong University of Science and Technology, China), Cai Zong                   |
| (Shandong University of Science and Technology, China), Weihong Jiang                  |
| (Shandong University of Science and Technology, China), Yao Ma                         |
| (Shandong University of Science and Technology, China), and Yingxia Fu                 |
| (Shandong University of Science and Technology, China)                                 |

| Itinerary Card Anti-Cheating Beyond OCR  | 162 |
|--|-----|
| Research on Application of SLAM in Appearance Inspection of Civil Aviation Aircraft  | 168 |
| Research on Dance Movement Evaluation Method Based on Deep Learning Posture Estimation 1<br>Haoyu Tang (Chengdu University of Techology, China), Yaohua Luo<br>(Chengdu University of Techology, China), and Jing Yang (Chengdu<br>University of Techology, China) | 173 |
| Research on Baggage Tray Recognition in Airports Based on Residual Neural Network  | 178 |
| Application of Gas Photoacoustic Spectroscopy Optical Detection Technology to SO2F2 Gas<br>Concentration Detection   | 183 |
| ARCards: Marker-Based Augmented Reality Recognition for Business Cards   | 189 |
| Research on Small Moving Object Detection Based on Improved Gaussian Mixture Model   | 197 |

### Modern Teaching Mode and Management

| The Analysis of Effect Factors of Long-Term Interruption of Engineering Mathematics |  |
|---|--|
| Learningby the CAAC First Test Flight Training Course as an Example                 |  |
| Qiang Wang (Civil Aviation Flight University of China, The People's                 |  |
| Republic of China) and Jingfan He (Civil Aviation Flight University of              |  |
| China, The People's Republic of China)  |  |
|   |  |

| )6 |
|----|
| .0 |
| .6 |
|    |
| 21 |
| 28 |
| 33 |
|    |

| Author Index | <br> |
|--------------|------|
|              |      |