

2022 5th International Conference on Computing and Big Data (ICCBD 2022)

**Shanghai, China
16-18 December 2022**



**IEEE Catalog Number: CFP22CV6-POD
ISBN: 978-1-6654-5717-0**

**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:	CFP22CV6-POD
ISBN (Print-On-Demand):	978-1-6654-5717-0
ISBN (Online):	978-1-6654-5716-3

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

2022 5th International Conference on Computing and Big Data (ICCBD 2022)

Table of Contents

Preface	vi
Organizing Committee.....	viii

∞ Data Structure and Data Calculation

Research on Ship Trajectory Prediction using LSTM and BP Based on AIS Data	1
<i>Jingming Yu, Jie Wang, Rong Ren, Hua Lu, Qiuyu Lai, Xinpeng Luo</i>	
Research of Data-driven Iterative Optimization Scheme for Machine Learning Models.....	6
<i>Jinsen Yang, Zhijian Zou, Jiapeng Xiu, Peinian Wang, Yiting Yang</i>	
Unified Analysis of Algorithms for Dictionary Learning.....	12
<i>Min Xiang</i>	
Bayesian Network for Base Station Energy Consumption Data Completion.....	19
<i>Jiannan Tan, Lika Li, Huichang Zhang, Baohua Liu</i>	
Rapid Processing Technology of Massive Data based on XMA New Collector in Flight Test	24
<i>Zhenhua Wu, Wei Zhang, Meijuan Yang, Rui Nie</i>	
Augmented Reality Tool Based in the Cloud to Improve the Quality of SMAW and MIG Processes Through Data Comparison	29
<i>Jessica Silva, Mario Lara, Myriam Bayas, Luis Mopocita, Daniel Jerez, Gabriela Herrera</i>	

∞ Data Model and Numerical Analysis

Implications on the Prevalence of Online Sexual Exploitation of Children (OSEC) in the Philippines: A Cybersecurity Literature Review	34
<i>Eric Blancaflor, Lenz Baron S. Balita, Val Rindel S. Subaan, Julia Anna Denise F. Torres, Kirsten Joyce P. Vasquez</i>	
A Novel Method for Product Quality Control Based on Production IoT Data	39
<i>Xiaolei Hu, Xue Zhang</i>	
Digital Twin for Air Conditioning Systems Based on Electric Vehicle Operating Data	44
<i>Jin Dai, Shen Kai, Yuejiu Zheng, Chong Liang, Peng Ding, Lianjie Chen, Yujia Ling, Jiahui Weng, Wenkang Bao, Weijing Chen</i>	

Data Streams Management: Multidimensional Summary with Big Data Tools	50
<i>Jean Gane Sarr, Ndiouma Bame, Aliou Boly</i>	
Ensemble Summarization Models to Leverage Performance	56
<i>Afamefuna Promise Umejiaku, Fei Zhou, Victor S. Sheng</i>	
Data-driven Prognostic for IGBT Failure Precursor Parameter Based on Informer	62
<i>Wei Luo, Dewen Zhang, Yanzhe Xue, Ziyin Yang</i>	
Robustness of k-Anonymization Model in Compliance with General Data Protection Regulation	67
<i>Ibrahim Bio Abubakar, Tarjana Yagnik, Kabiru Mohammed</i>	
Empirical Study on Equity Incentive of Core Employees, Enterprise Innovation and Financial Performance-Based on Big Data of GEM Listed Companies.....	73
<i>Haihong Li, Qinghua Liu</i>	
Numerical Simulation on Drag Reduction of Microgrooved Surface	78
<i>Tianlong Yang, Qin Dong, Tianjian Li, Tao Wu</i>	
∞ Prediction Calculation and Algorithm	
Traffic Flow Prediction Using Deep Learning Models.....	83
<i>Ching-Seh Wu, Satya Pranavi Manthena, Saurabh Kale, Maithili Vinayak Kulkarni</i>	
Hybrid Neuro-Particle Swarm Optimization Model for Predicting Depression in Asphalt Pavements	89
<i>Ralph Alwin M. de Jesus, Dante L. Silva</i>	
A Privacy-preserving Users' Power Load Prediction Method Based on Federated Learning.....	94
<i>Kangqian Huang, Rui Zhou, Xin Hu, Dejun Xiang, Yuhang Xie, Jiaxin Lai, Jiaqi Deng, Yang Liu</i>	
∞ Intelligent Network Monitoring and Data Analysis	
An IoT Monitoring System Designed for Hydroponics Plant Cultivation	102
<i>Eric Blancaflor, Kevin Nicholas U. Banganay, Karen E. Fernandez, Jameela Nadine D. Jamena, Raya Shane C. Rabanal, Stephany Lhaime G. Zamora</i>	
LS-Gossip: An Improved Block Distribution Algorithm in Blockchain Networks	107
<i>Jinze Li, Xiaofeng Li, He Zhao, Bin Yu, Tong Zhou, Xianxian Zhao</i>	
A Dynamic Deceptive HoneyNet System with A Hybrid of Virtual and Real Devices	113
<i>Zheng Minjiao, Ma Yufeng, Wu Bo, Qian Zhang</i>	
An IoT Design of a Dehydration Indicator System Based on Urine Color	118
<i>Eric Blancaflor, Michael Rafael A. Dela Cruz, Nicolo Mikael E. Dionisio, Jephtha Mathan V. Española, John Wendell J. Maranan, Jeffrey M. Miraflores</i>	
Using a Compositional Function Hybridization of GCDPSO and GA to Solve Task Allocation Problems in Smart Farms	123
<i>Minzhi Xu, Weidong Li, Xuejie Zhang</i>	

Towards a Fault-Tolerant and Scalable Network Infrastructure Design for an Educational Institution in Marinduque Island, Philippines..... 131

William Rey, Eric Blancaflor, Keith Wilhelm Jan Rey

Image Analysis and Calculation Method

Video Deblurring with GAN 136

Haoyu Wang, Jiawei Niu

A Flame Detection Algorithm Based on Improved YOLOv3 and Thermograph Generation 141

Yong Zhang, Jiaqing Zhang, Jianhua Zhang, Weijie Xing

The Action Recognition with Multi-Clue Sparse 3-Dimensional Convolutional Networks..... 146

Hongtao Man, Deqiang Zou, Tuo Li

Multiple Magnification Spatial Super-Resolution Network for Light Field Images Based on EPI Solid..... 151

Lijuan Su, Zimu Ye, Yan Yuan, Yuxiao Sui, Deqian Kong, Yue Xu

Augmented Reality Long-term Tracking Based on Multi-Attention 160

Guo Mengru, Chen Qiang

Information Management and Intelligent Computing

Geoconsult—A Mine Permitting Monitoring and Tracking Information System for Independent Consultancy..... 165

Mary Jane C. Samonte, Jasper Jan O. Solee

Aspect-Based Sentiment Analysis with Multi-Task Learning..... 171

Yu Pei, Yuqi Wang, Wei Wang, Jun Qi

A Generic Digital Twin Framework for Collaborative Supply Chain Development..... 177

Xin Lu, Wei Wang, Weidong Li, Yanguo Jing, Xiaoxia Li

Bibliometric Analysis of Chinese Journals of Religion between 1994 and 2021..... 182

Xiaowei Zhou

Smart City: Contrastive Understanding of a Multi-Faceted Concept 187

Jessica Wu, Kathy Fogel, Harris Wu

Development of the Environmental Impact Assessment (EIA) Empowerment and Advancement Framework using Artificial Neural Network (ANN)—based Sensitivity Analysis 192

Denver D. Baldago, Dante L. Silva, Divina R. Gonzales

Author Index