2021 International Conference on Information Technology and Biomedical Engineering (ICITBE 2021)

Nanchang, China 24-26 December 2021



IEEE Catalog Number: CFP21BF8-POD ISBN:

978-1-6654-0100-5

Copyright © 2021 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:
 CFP21BF8-POD

 ISBN (Print-On-Demand):
 978-1-6654-0100-5

 ISBN (Online):
 978-1-6654-0099-2

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



2021 International Conference on Information Technology and Biomedical Engineering (ICITBE) ICITBE 2021

Table of Contents

Message from the ICITBE 2021 General Chairs	
Message from the ICITBE 2021 Program Chairs	
Organizing Committee Program Committee/Reviewers	xix
Cosponsors	
Information Technology	
A Cross Entropy-Based Approach for Controller Placement Problem in Software Define Network	:d 1
Jue Chen (Shanghai University of Engineering Science, China), Hanmin Yin (Shanghai University of Engineering Science, China), Changwei Xiao (Shanghai University of Engineering Science, China), and Dun He (Shanghai University of Engineering Science, China)	
A Guided Test Case Generation Algorithm Based on the Method of Collision Domain D Fengyu Yang (Nanchang Hangkong University, China), Yongjian Fan (Nanchang Hangkong University, China), and Zheng Fang (Nanchang Hangkong University, China)	etection . 6
A Mixing Model for Monitoring Trace Oil at Sea	11
A New Imaging Method of MIMO-GPR to Improve Target Detection Accuracy	16
A Preliminary Study of GIS Technology in Rural Landscape, with Yanqing as an Example Lin Liu (Beijing University of Agriculture, Beijing), Kai Huang (Beijing University of Agriculture, Beijing), and Zhongxing Sun (Beijing University of Agriculture, Beijing)	21
A Short-Term Wind Power Prediction Forecasting Using Variational Modes Decomposit on Long-Short Term Memory	

A Spatio-Temporal Big Data Decision Support System of Real Estate	
A Text Classification Method Based on Graph Attention Networks	
An Adaptive Error Correction Method for Array Receiver	
An Unambiguity Method for PD Radar Using OFDM-LFM Signal	
Application of Wireless Mesh Network Based on Zigbee in Mine Safety Monitoring System 48 Yunxiao Qiang (Xi'an University of Science and Technology, China) and Zimin Fan (Xi'an University of Science and Technology, China)	
Communication Strategy of Trendy Brands under the Background of New Media	
Depthwise Over-Parameterized Siamese Network for Visual Tracking	
Design of Laboratory Safety Window Based on Single-Chip Microcomputer	
Design of Quantum Filter for Hybrid Quantum-Classical Convolutional Neural Networks 66 Yunqian Wang (Nanchang University, China), Chao Chen (Nanchang University, China), and Wei Huang (Nanchang University, China)	
DNDT: Infrared and Visible Image Fusion via DenseNet and Dual-Transformer	

Library of Jianghan University as an Example	76
Empirical Study on Electromagnetic Response Characteristics Calculation of IP anomalies in 3D Geological Bodies	
GOKA: A Network Partition and Cluster Fusion Algorithm for Controller Placement Problem SDN	
Changwei Xiao (Shanghai University of Engineering Science, China) and Jue Chen (Shanghai University of Engineering Science, China)	
Hierarchical Graph Sparse Attention Network for Online Action Tracking Gaofeng Li (Luoyang Normal University, China) and Songlin Wang (Luoyang Normal University, China)	90
Image Super-Resolution Reconstruction Based on Multi-Scale Residual Learning	96
Investigation of Time-Delay Nonlinear Dynamic System in Batch Fermentation with Differential Evolution Algorithm Pai Zhang (Guilin University of Electronic Technology, China) and Qi Yang (Guilin University of Electronic Technology, China)	101
Key Frame Extraction for Falling Detection Jingjin Du (Shijiazhuang Tiedao University, China), Yale Zhao (Shijiazhuang Tiedao University, China), Shanna Zhuang (Shijiazhuang Tiedao University & Hebei Key Laboratory for Electromagnetic Environmental Effects and Information Processing, China), and Zhengyou Wang (Shijiazhuang Tiedao University & Hebei Key Laboratory for Electromagnetic Environmental Effects and Information Processing, China)	105
Lane Departure Warning Model Based on Slope Xueting Zheng (Shijiazhuang Tiedao University, China), Zhengyou Wang (Shijiazhuang Tiedao University & Hebei Key Laboratory for Electromagnetic Environmental Effects and Information Processing, China), Yanan Zhang (Shijiazhuang Tiedao University, China), and Shanna Zhuang (Shijiazhuang Tiedao University & Hebei Key Laboratory for Electromagnetic Environmental Effects and Information Processing, China)	110
Learning Channel Attention in Frequency Domain for Visual Tracking	115

Motion Planning and Compliance Control Method for Direct Drive Vacuum Manipulator Zefeng Zhang (Shenyang Institute of Automation, Chinese Academy of Sciences, Institutes for Robotics and Intelligent Manufacturing, Chinese Academy of Sciences, University of Chinese Academy of Sciences, Shenyang SIASUN Robot & Automation Co., China) and Fang Xu (Shenyang Institute of Automation, Chinese Academy of Sciences, Institutes for Robotics and Intelligent Manufacturing, Chinese Academy of Sciences, Shenyang SIASUN Robot & Automation Co., China)	. 120
Multi-Scale Profile-HMM Action Recognition Based on Double Matching States	. 126
On the Empirical Distribution of Coverage Regions in Strauss Cellular Networks	.131
Optimization Algorithm of Raw Material Ratio of Zircon Brick Based on SVM and APSO Yufeng Liang (Shandong University of Science and Technology, China), Wenxue Wei (Shandong University of Science and Technology, China), Jiajia Jiang (Shandong University of Science and Technology, China), and Yuanyuan Qu (Shandong University of Science and Technology, China)	135
Pedestrian Attribute Recognition Based on Deep Learning: A Survey Xi Chen (Shijiazhuang Tiedao University, China), Shanna Zhuang (Shijiazhuang Tiedao University & Hebei Key Laboratory for Electromagnetic Environmental Effects and Information Processing, China), Xueting Zheng (Shijiazhuang Tiedao University, China), and Zhengyou Wang (Shijiazhuang Tiedao University & Hebei Key Laboratory for Electromagnetic Environmental Effects and Information Processing, China)	.140
Project Teaching Platform for BOPPPS Model in Engineering Education Based on Spring Framework Rongjun Chen (Guangdong Polytechnic Normal University, China), Haomin Huang (Guangdong Polytechnic Normal University, China), Xindi Zhang (Guangdong Polytechnic Normal University, China), Yani Zheng (Guangdong Polytechnic Normal University, China), Lin Wang (Zhaoqing University, China), and Huailin Cui (Guangdong Polytechnic Normal University, China)	. 145
Rail Identification Using Camera and Millimeter-Wave Radar Data	. 150
Rapid and Auxiliary Decision System of Earthquake Emergency Based on QGIS	. 155

Research on CPSPWM Reconfigurable Control of Cascaded Multilevel Converter	161
Research on the Evaluation Index System of Randomness of Individual Opinion Evolution in Knowledge Collaboration	165
Ship Equipment Supporting Method Based on Information-Technology	170
Safety Evaluation of Naval Ship Wire Rope Based on Damage Detection Technology and Strength Loss	. 173
Scene Classification of Remote Sensing Images Based on Deep Network Transferability and Image Complexity	178
Smooth Multiobjective Portfolio Optimization Model and Its Solving Method	. 183
Speed and Angle Based Trajectory Simplification Algorithm	187
Stock Prediction Method Based on BP Neural Network	193
Strategic Analysis of Green Marketing in Chinese Textile and Garment Industry under the Background of Big Data	. 197
Supervised Learning Based on Local Recurrent Spiking Neural Networks	. 202
The Comparison of Two SVPWM Methods for Low Speed Control of PMSM in Servo System Xiaorui Zhao (Beijing Research Institute of Precise Mechatronics and Controls & Laboratory of Aerospace Servo Actuation and Transmission, China), Dongge Zhang (Beijing Research Institute of Precise Mechatronics and Controls, China), and Yiqi Zhang (Beijing Research Institute of Precise Mechatronics and Controls, China)	. 207

The Influence of Energy Distribution on Organic Magnetoconductance
The Roles of Consumer Confusion, Education, and Age between Word of Mouth and Impulsive Purchase: A Mediated Moderation Model
The Transformation Method of Vehicle Dynamics Right Hand Coordinate System and Image Left Hand Coordinate System
Three-Dimensional Reconstruction of Railway Driver Based on Monocular Camera
Variety, Quantity or Price, the Source of Dynamics of China's High-Tech Products Exports to 16 CEECs
Which Investment and Financing Mode Is More Sustainable in China: Financing Platform or PPP Mode?
Yak Object Detection Based on Data Augmentation of Style Transfer Method
Biomedical Engineering
A Novel Face-Based Approach for the Early Diagnosis of Parkinson's Disease

A Wearable Near Infrared and Tonometry-Based Headband for Cerebrovascular Autoregulation
Monitor
(Massachusetts General Hospital & Harvard Medical School, USA)
Analysis and Prediction of COVID-19 Based on the SIR-B Model
Analysis of Physicochemical Characteristics and Evaluation of Heavy Metals in the East
Juyan Lake Basin Sediments
(Yellow River Institute of Hydraulic Research, Henan Engineering Research Center of Reservoir-Lake Function Restoring and Maintaining, China), and Xiaofei Yan (Yellow River Institute of Hydraulic Research, Henan Engineering Research Center of Reservoir-Lake Function Restoring and Maintaining, China)
Application of SVD EMD SG Combination Algorithm in TDLAS Rice Seed Respiration Detection 272 Jun Yuan (Huzhou University, China), Liangquan Jia (Huzhou University, China), Lu Gao (Huzhou University, China), Hengnian Qi (Huzhou University, China), and Xu Huang (Huzhou University, China)
Assessment of Breast Cancer Mesenchymal Tumor Infiltrating Lymphocytes Based on Regional Segmentation and Nuclear Segmentation Classification
Changes of Tongue Color Parameters with Different Syndromes in Diabetic Patients with Deafness
Comparison of Aging Effect between Cardiac Complexity and Baroreceptor Sensitivity 287 Yi-Horng Lai (Xiamen University, China), Yi Yuan (Xiamen University, China), Yu-xian Liang (Xiamen University, China), and Jia-han Yu (Xiamen University, China)

Control of Aspergillus Flavus with Citronellol and Its Potential Application as a Food Preservative	. 292
Lijun Ling (Bioactive Products Engineering Research Center for Gansu Distinctive Plants & Northwest Normal University, China), Kunling Jiang (Bioactive Products Engineering Research Center for Gansu Distinctive Plants & Northwest Normal University, China), Wenting Cheng (Bioactive Products Engineering Research Center for Gansu Distinctive Plants & Northwest Normal University, China), Mingmei Pang (Bioactive Products Engineering Research Center for Gansu Distinctive Plants & Northwest Normal University, China), and Hong Luo (Bioactive Products Engineering Research Center for Gansu Distinctive Plants & Northwest Normal University, China)	
Copper Loaded Ureteral Stent Reduces Encrustation Jianzhong Li (General Hospital of Northern Theater Command, China) and Jing Zhao (Institute of Metal Research, Chinese Academy of Sciences, China)	. 296
Deep Learning's Application on Radiology and Pathological Image of Lung Cancer: A Review Han Wang (City University of Macau, Beijing Institute of Technology, & Zhuhai Institute of Advanced Technology, Chinese Academy of Sciences, China) and Lumin Xing (First Affiliated Hospital of Shandong First Medical University, Shandong Provincial Qianfoshan Hospital, & City University of Macau, China)	299
Design and 3D Printing of Liver Surgical Guide Template Based on Mimics Liver Model Reconstruction	. 304
Design of Radiotherapy Applicator for Cervical Cancer Based on 3D Printing Jiajian Chen (Guangxi University of Science and Technology, China), Guanglin Shi (Guangxi University of Science and Technology, China), Xueying Yao (Guangxi University of Science and Technology, China), Boshi Shang (Guangxi University of Science and Technology, China), Wenxuan Liu (Guangxi University of Science and Technology, China), and Xuezhao Zhou (Guangxi University of Science and Technology, China)	. 308
Design of Temperature and Humidity Control System for Medicine Cabinet in Biological Laboratory Based on Embedded System	, 312
Detection Method and Kit Development of Brucella Based on Isotemperature Amplification Technology	315

sinensis	.318
Xiu-Zhang Li (Qinghai University, China), Yu-Ling Li (Qinghai University, China), and Jia-Shi Zhu (Qinghai University, China)	
Dynamic Response of a Class of Fractional-Order Biomedical Model under Fractional Delay Feedback	334
Zhoujin Cui (Jiangsu Maritime Institute, China), Zisen Mao (The Army Engineering University of PLA, China), and Xiaorong Zhang (Jiangsu Maritime Institute, China)	
Effect of "Ying Wei Fang Plus or Minus" on Patients with Type 2 Diabetes Complicated with Depression	.339
Ruiyu Li (Second Affiliated Hospital of Xingtai Medical College, China), Yue Li (Hebei Normal University, China), Xing Li (Shijiazhuang People's Medical College, China), Meng Li (Health Team of Hetian Detachment Xinjiang Armed Police Corps, China), Weiya Guo (Second Affiliated Hospital of Xingtai Medical College, China), and Jinjie Hou (Second Affiliated Hospital of Xingtai Medical College, China)	
Grifola Frondosa Polysaccharides Affect Gut Microbiota and Lipid Profiles Depended on the Molecular Weight in Mice	. 344
Identification of Hub mRNA, miRNAs and LncRNAs of Uveal Melanoma with Weighted Gene Correlation Network Analysis	350
Over-Expression of SSU1 Gene Improves the Sulfur Resistance of Saccharomyces Uvarum Zhiming Zhang (Southwest Forestry University, China), Xiaozhen Liu (Southwest Forestry University, China), Hanyao Zhang (Southwest Forestry University, China), Tuo Yin (Southwest Forestry University, China), and Yuhong Gao (Southwest Forestry University, China)	.359
Predictive Nomogram for Depressive Symptoms in Postgraduate Medical Students: A Case-Control Study Zewen Huang (Macau University of Science and Technology, China), Junyu Wang (Hangzhou Dianzi University, China), Lejun Zhang (South China Normal University, China), Lu Xu (East China Normal University, China), Tingting Wang (Macau University of Science and Technology, China), Ming Guo (The Second Affiliated Hospital of Nanchang University, China), Xi Xu (The Second Affiliated Hospital of Nanchang University, China), and Heli Lu (The Second Affiliated Hospital of Nanchang University, China)	364

Research on Intelligent Diagnosis Method of Depression Based on Audio Signal	59
Research on Light Field Correction Based on LinkNet in HER2 Pathological Image	74
Research on Predicting Velocity-Time Integral of Shunt Flow Using Time-Frequency Features of Heart Sound with Correlation	30
Study on the Detection Method of Rabies Virus and the Development of Its Kit Based on RAA Technology	35
Study on the Method and Performance of Ceramsite Manufactured from Zipingpu Reservoir Sediment	38
Study on the Tribological Characteristics of Carbon Fiber Board Containing Superfine Copper Powder Additive	93
The Application of Blockchain to Electronic Health Record Systems: A Review	Э7
The Compact Genetic Algorithm Based Method for Disease Associated Study)2

The Effect of PPARy Activation on Fracture Healing in Rabbits and Optimization	406
The Efficiency Comparison of Two Risk Prediction Models of Cholecystitis in Middle-Aged and Elderly Groups in Shanghai	411
The Expression of Serum Hepcidin and Erythropoietin in Tumor Patients with Radiotherapy Associated Anemia	416
The Physicochemical Characteristics and Evaluation of Heavy Metal Pollution of the Hualiangting Reservoir Sediments	419
The Therapeutic Effects in Inflammatory Bowel Disease of Functional Oligosaccharide Combined with Probiotic	425
Author Index	429