

2022 International Conference on Computing, Robotics and System Sciences (ICRSS 2022)

**Macau, China
19-21 December 2022**



**IEEE Catalog Number: CFP22DG1-POD
ISBN: 978-1-6654-6404-8**

**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:	CFP22DG1-POD
ISBN (Print-On-Demand):	978-1-6654-6404-8
ISBN (Online):	978-1-6654-6403-1

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 International Conference on Computing, Robotics and System Sciences (ICRSS) **ICRSS 2022**

Table of Contents

Message from General Chairs	viii
Message from Program Chairs	ix
Organizing Committee	x
Program Committee	xi
Reviewers List	xiii
Sponsors	xiv

Advance Robotics and Advance Robotics controls

Inchworm Robot Structural Design and Kinematic Modeling	1
<i>You Zhou (Department of Electrical Engineering, Zhengzhou University, China) and Qingshan Zeng (Department of Electrical Engineering, Zhengzhou University, China)</i>	
Design and Technical Research of the End-Executive Agency of Medical Robots	6
<i>Baiqian Zhang (Beijing University of Chemical Technology, China)</i>	
Research on Path Planning of Intelligent Mowing System Based on Computer Vision	10
<i>Leizhe Bai (Beijing Miyun District Landscaping Service Center, China)</i>	
Research on Off-Line Programming Technology of Robot General Spraying Based on DELMIA	15
<i>Xiankun Li (Sichuan Aeronautical Intelligent Manufacturing Equipment Engineering Technology Research Center, China; Chengdu Aircraft Industrial Group Co., Limited, China), Hong Tan (Sichuan Aeronautical Intelligent Manufacturing Equipment Engineering Technology Research Center, China; Chengdu Aircraft Industrial Group Co., Limited, China), Pei Lei (Sichuan Aeronautical Intelligent Manufacturing Equipment Engineering Technology Research Center, China; Chengdu Aircraft Industrial Group Co., Limited, China), and Jun Xu (Sichuan Aeronautical Intelligent Manufacturing Equipment Engineering Technology Research Center, China; Chengdu Aircraft Industrial Group Co., Limited, China)</i>	
The Application of Industrial Automation Computer Control System	20
<i>Eryi Zhang (University College Dublin, Ireland)</i>	
Trajectory Tracking Control of Underwater Robots Based on Neural Network Backstepping Method	24
<i>Zhimin Liu (Shanghai publishing and printing college, China) and Xiaozhong Zhou (Shanghai publishing and printing college, China)</i>	

Computing technologies

A Recursive Descent Analysis-Based Solution for Smart Contract Generation and Management	29
<i>Xu Zhong (Northeastern University at Qinhuangdao, China), Wen Wang (Shanghai Jiao Tong University Shanghai, China), Shuo Yang (Northeastern University at Qinhuangdao, China), Zhenyu Chai (Northeastern University at Qinhuangdao, China), and Qilong Yu (Northeastern University at Qinhuangdao, China)</i>	
Model Construction, Problems and Countermeasures of Intelligent Logistics Ecosystem Driven by Blockchain Technology	36
<i>Xing Huang (Guangzhou Sontan Polytechnic College Guangzhou, China)</i>	
The Design and Implementation of Complex Float Matrix Multiplication Operation Based on High-Level Synthesis	40
<i>Xiao Meng (Beijing Microelectronic Technology Institute, China), Wei Zhuang (Beijing Microelectronic Technology Institute, China), Zhiyong Qin (Beijing Microelectronic Technology Institute, China), Lixin Yu (Beijing Microelectronic Technology Institute, China), and Guowei Hou (Beijing Microelectronic Technology Institute, China)</i>	
Research on Safety Evaluation of Intelligent Expressway Road-Related Project	45
<i>Yarong Peng (Hebei Provincial Expressway Jingxiong preparation Office, China), Yaohui Chen (Hebei xiong'an Jingyi Quality Inspection Service Co., Ltd, China), Xudong Li (Hebei xiong'an Jingyi Quality Inspection Service Co., Ltd, China), Zhenya Zhou (Hebei University of Science and Technology, China), and Hongtao Xu (Hebei University of Science and Technology, China)</i>	
Mixture Loss Function-Based Classification Network for Few-Shot Learning	53
<i>Yansha Zhang (GuiZhou Minzu University, China), Feng Pan (GuiZhou Minzu University, China), Jie Wang (GuiZhou Minzu University, China), and Lin Wang (Key Laboratory of Pattern Recognition and Intelligent System of Guizhou Province, China)</i>	
Application of Laser Detector in Intelligent Transportation System	59
<i>Qian Xie (Southwest Institute of Technical Physics, China), WenZhi Qin (Southwest Institute of Technical Physics, China), HePing Xie (Southwest Institute of Technical Physics, China), Xu Pan (Southwest Institute of Technical Physics, China), QingMin Chen (Southwest Institute of Technical Physics, China), Yuan Liu (Southwest Institute of Technical Physics, China), HongJun Tian (Southwest Institute of Technical Physics, China), and Shuai Huang (Southwest Institute of Technical Physics, China)</i>	
Diagnosis of Alzheimer's Disease Based on Logistic Regression Algorithm	64
<i>YuSi Chen (Quanzhou Normal University, China; Fujian Provincial Key Laboratory of Data-Intensive Computing, China; Key Laboratory of Intelligent Computing and Information Processing, China), Ning Liu (Hangzhou Normal University, China; Quanzhou Normal University, China; Fujian Provincial Key Laboratory of Data-Intensive Computing, China), and PeiKun Chen (Xiamen Silicon Field System Engineering Co., Ltd., China)</i>	

Knowledge Graph Completion Technology Research	68
<i>Yongqi Shi (National University of Defense Technology, China), Yiwei Lu (National University of Defense Technology, China), Ruopeng Yang (National University of Defense Technology, China), and Yuantao Yang (National University of Defense Technology, China)</i>	
Research on Big Data Mining Application of Internet of Things Based on Artificial Intelligence Technology	74
<i>Zihao Han (Cardiff University, UK)</i>	
Predictive Analysis of Parking Demand Based on Time Series Model	78
<i>Peiji Duan (Xidian University, China), Fan Bao (Mingya insurance brokers, China), and Haoyu Wen (Xidian University, China)</i>	
Research on Collaborative Development of Conventional Bus and Subway Operation Scheduling: Take Guangzhou as an Example	82
<i>Yu Bai (Guangzhou Transportation Research Institute co., Ltd, China)</i>	
Design of Telecom Operators IDC Resale Analysis System Based on Spark	89
<i>Mingyang Song (Xinjiang University, China), Zhenghong Jia (Xinjiang University, China), Yan Huang (China Mobile Communications Group Xinjiang Co, Ltd Urumqi, China), Li Tang (China Mobile Communications Group Xinjiang Co, Ltd Urumqi, China), Guojian Xu (Xinjiang University, China), and Zhenggang Leng (Xinjiang University, China)</i>	

Human Machine interaction

Research on Voice Control Technology for Home Smart Elderly Care	94
<i>Xikang Song (Rutgers University, US)</i>	
Design and Development of Smart Snack Vending Machine	100
<i>RuiZe Ming (Wuhan Business University, China) and Cui Zhao (Wuhan Business University, China)</i>	
A Deep Reinforcement Learning Strategy for UAV Autonomous Landing on a Platform	104
<i>Zhiling Jiang (Zhejiang University, China) and Guanghua Song (Zhejiang University, China)</i>	
Author Index	111