

2022 International Conference on Innovations and Development of Information Technologies and Robotics (IDITR 2022)

**Virtual Conference
27 May 2022**



**IEEE Catalog Number: CFP22BO1-POD
ISBN: 978-1-6654-0933-9**

**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:	CFP22BO1-POD
ISBN (Print-On-Demand):	978-1-6654-0933-9
ISBN (Online):	978-1-6654-0932-2

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

CURRAN ASSOCIATES INC.
proceedings
.com

Table of Contents

Chapter 1 - Computer vision & digital signal processing

Trajectory tracking method with short time step and long trajectory prediction	1
<i>CHU Kaixuan, CHANG Tianqing, ZHAO Liyang, ZHANG Jie, YAN Xiaodong</i>	
Data Analysis and Visualization Application Research on Popular Scenic Spots in China	6
<i>Lanlan Zhang, Li Li, Gang Shi</i>	
A RESEARCH OF TARGET PASSIVE TRACKING METHOD BASED ON MULTIPLE AUTONOMOUS UNDERWATER VEHICLES	11
<i>Liang Li, Yiping Li, Junbao Zeng, Gaopeng Xu, Yuexing Zhang, Xisheng Feng</i>	
KOOPi: Keypoint-Oriented Object Positioning in Industry.....	17
<i>Chonghao Zhao, Gang Wu</i>	
Fault-Tolerant formation keeping design for Multi-AUVs in MOOS-IvP	22
<i>Peiyan Gao, Yiping Li, Junbao Zeng, Shuo Li</i>	
Off road path planning based on hybrid artificial potential field and ant colony algorithm	27
<i>YAN Xiaodong, CHANG Tianqing, CHU Kaixuan, ZHAO Liyang, ZHANG Jie</i>	
Research on Noise Filtering Method of Fire Truck Based on Digital FIR Filter.....	32
<i>CanCui, ZengLi, Yuntian Bai</i>	
Fast Algorithm Design of HEVC Intra Prediction.....	38
<i>Guo Fengwei, Cheng Yong, Xiao Shuai</i>	
Optimal Design Method for the Partitioning of OLTC-Inverter Control Parameters in Distribution Stations with High-proportion Residential Photovoltaics	43
<i>Zhi Song, YuanTing Hu, HuaiYu Guo, JianCheng Ma, BaiYue Song, MingYu Xu, ZhiYang Liu</i>	
Prescribed Performance Formation Control Method of Multiple Autonomous Underwater Vehicles Based on Leader-follower	50
<i>WANG Yuliang, LI Yiping</i>	
Identification of Single-phase Grounding Fault Type in Distribution Network Based on VMD and SVM	56
<i>Bo Feng, Jia Yang, Yong Jia, Yan Chen, Hongwei Zhao, Guimei Cao</i>	
Design and Experiments of an Anthropomorphic Finger with Circular Arc Staggered Compliant Joints.....	62
<i>Yin Zhang, Pengfei Chen, Xuhui Yang, Chenggang Liu, Zewen Qi, Yang Li, Qinjuan Xu, Qiang Zhan</i>	

Chapter 2 - Data analysis & fault-tolerant control

Pipeline damage identification based on weak fiber Bragg grating sensor array..... 67
Hongren Li, Feiyang Pu, Qiankui Feng, Xinglin Tong

Design of the control and risk automatic warning platform for power grid operation based on AI+video technology 73
Sen He, Weiming Li, Gang Zhao, Yunhai Song, Yaohui Xiao, Zhenzhen Zhou, An Chang

Spatial Positioning and Regional Intrusion Monitoring Method Based on 3D Real Scene Model of Converter Station..... 78
Weiming Li, Yaohui Xiao, Sen He, An Chang, Zhenzhen Zhou, Huailin Huang, Gang Zhao

Gas Sensor with Fractal Geometry Optimized Electrode Structure..... 83
Taicong Yang, Fengchun Tian, Anyan Jiang, Maogang Jiang

Threshold selection of wavelet denoising based on optimization algorithms..... 88
Han Xiao, Danfeng Hu, Jiajun Wang

Autonomous Mobile Robot Navigation using Adaptive Neuro Fuzzy Inference System 93
Muhammad Husnain Haider, Hub Ali, Abdullah Arnan Khan, Hao Zheng, M. Usman Maqbool Bhutta, Shaban Usman, Pengpeng Zhi, Zhonglai Wang

Chapter 3 - Motion planning and control

Processing and Recognition of Characters Image in Complex Environment 100
JiaJing Yuan, MinYang Guo, BinYan Huang, RuiQi Hu, SongYi Dian

Collaborative Multi-Chain Architecture for Data Transmission across Homogeneous Blockchain..... 105
Yousif Abuidris, Changyuan Wang, Wanan Yang

Research on transaction mode and interactive control strategy for aggregated thermostatically controlled load based on block chain technology 111
Mingzhe Chai, Ciwei Gao, Chaoliang Wang, Lei Li, Wei Liu, Jingju Wang

Sub-pixel Underwater Object Size Measurement Algorithm Based on Improved Otsu Binarization and Edge Curvature Filtering 116
Chen Chen, Hangbin Cao, Jun Liu, Shaoli Hu, Jingyu Ru, Hongli Xu

Neural Network and Extreme Gradient Boosting in Near Infrared Spectroscopy 123
Kim Seng Chia, Nur Aisyah Syafinaz bt. Suarin