

2022 International Conference on Industrial Automation, Robotics and Control Engineering (IARCE 2022)

**Chengdu, China
14 – 16 October 2022**



**IEEE Catalog Number: CFP22CZ3-POD
ISBN: 978-1-6654-5441-4**

**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:	CFP22CZ3-POD
ISBN (Print-On-Demand):	978-1-6654-5441-4
ISBN (Online):	978-1-6654-5440-7

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

CURRAN ASSOCIATES INC.
proceedings
.com

2022 International Conference on Industrial Automation, Robotics and Control Engineering (IARCE) **IARCE 2022**

Table of Contents

Message from the General Chair	viii
Message from the Program Chair	ix
Organizing Committee	x
Program Committee	xi
Reviewers	xiii

IARCE 2022

Research on Target Tracking Algorithm Based on Multi-Layer Convolution Feature Fusion	1
<i>Kehao Xiao (Information Institute of Yunnan University) and Hao Zhou (Information Institute of Yunnan University)</i>	
Interactive Force Analysis of High-Speed Locomotion of Quadruped	9
<i>Senwei Huang (Beijing Jiaotong University, China) and Xiuli Zhang (Beijing Jiaotong University, China)</i>	
Research on Scenario Based Test for Auto-Landing System	15
<i>Ru Tan (Shanghai Aircraft Design and Research Institute, China) and Zhichao Yao (Shanghai Aircraft Design and Research Institute, China)</i>	
6D Hybrid Pose Estimation in Cluttered Industrial Scenes for Robotic Grasping	19
<i>Yueyan Peng (Jihua Laboratory, China), Xuyun Yang (Jihua Laboratory, China), Sheng Wei (Jihua Laboratory, China), Xiang Gao (Jihua Laboratory, China), Wei Li (Fudan University, China), and James Zhiqing Wen (Jihua Laboratory, China)</i>	
A High-Accuracy Camera Calibration Method Based on Special Circular Target	24
<i>Guanzhijing Wen (Huazhong University of Science and Technology, China), Yifan Yang (Huazhong University of Science and Technology, China), Zeyuan Yang (Huazhong University of Science and Technology, China), Jin Yue (Huazhong University of Science and Technology, China), and Sijie Yan (Huazhong University of Science and Technology, China)</i>	
Application of Man-Machine Hybrid Intelligence in Ground Unmanned Combat	29
<i>Xiaodong Yan (Army Academy of Armored Forces, China), Kaixuan Chu (Army Academy of Armored Forces, China), Liyang Zhao (Army Academy of Armored Forces, China), Tianqing Chang (Army Academy of Armored Forces, China), and Jie Zhang (Army Academy of Armored Forces, China)</i>	

An Improved Snake Optimization Algorithm with Opposition-Based Population Initialization ..	34
<i>Yuancheng Xu (University of Electronic Science and Technology of China, China), Mengji Shi (University of Electronic Science and Technology of China, China), Long You (University of Electronic Science and Technology of China, China), Weihao Li (University of Electronic Science and Technology of China, China), Boxian Lin (University of Electronic Science and Technology of China, China), and Kaiyu Qin (University of Electronic Science and Technology of China, China)</i>	
Incremental Nonlinear Dynamics Inversion for Attitude Control of High-Lift Hybrid Mode UAV Transition Process	40
<i>Jiacheng Chi (National University of Defense Technology, China), Yujie Wang (National University of Defense Technology, China), Hongbo Xin (National University of Defense Technology, China), Qingyang Chen (National University of Defense Technology, China), Peng Wang (National University of Defense Technology, China), and Zhongxi Hou (National University of Defense Technology, China)</i>	
A Self-Correctional Hand-Eye Calibration Regime Using Extensive Pose-Image Pairs with Quantifiable Gaussian Errors from Homogeneous Matrices Decomposition	45
<i>Sheng Wei (Jihua Laboratory, Guangdong), Zhiqing Wen (Jihua Laboratory, Guangdong), Weilin Chen (Foshan University, Guangdong), Xinyang Gao (Northeastern University of China, Liaoning), and Yu Tang (Guangdong Polytechnic Normal University, Guangdong)</i>	
Multi-Stage Joint Level Motion Planning for Robot Assisted Peg-in-Hole Task	51
<i>Dezhu Xiong (Ji Hua Laboratory, China), Xiang Gao (Ji Hua Laboratory, China), Xu Yun Yang (Ji Hua Laboratory, China), Wei Li (Fudan University, China; Ji Hua Laboratory, China), and Zhiqing James Wen (Ji Hua Laboratory, China)</i>	
SDformer: Efficient End-to-End Transformer for Depth Completion	56
<i>Jian Qian (Fudan University, China), Miao Sun (Fudan University, China), Ashley Lee (PhotonIC Technologies, China), Jie Li (Fudan University, China), Shenglong Zhuo (Fudan University, China), and Patrick Yin Chiang (Fudan University, China)</i>	
Angle and Heuristic Guided Probabilistic Foam for Local Path Replanning	62
<i>Onur Yildirim (Istanbul Technical University, Turkey), Aykut Özdemir (Istanbul Technical University, Turkey), and Seta Ovsanna Bogosyan Estrada (Istanbul Technical University, Turkey)</i>	
Analysis of Facial Expressions in Class Based on Lightweight Convolutional Neural Network ...	68
<i>Zhiyuan He (Guizhou University College of Big Data and Information Engineering, China) and Xue Qin (Guizhou University College of Big Data and Information Engineering, China)</i>	
The Design Method of Quasi-Sliding Mode Variable Structure Controller for Missile Inclined Channel	75
<i>Juanzhi Lu (Xi'an Modern Control Technology Research Institute, China), Lin Liu (Xi'an Modern Control Technology Research Institute, China), and Fei Ma (Xi'an Modern Control Technology Research Institute, China)</i>	
Interpretable Sentiment Analysis Based on Sentiment Words' Syntax Information	80
<i>Qingqing Zhao (Beijing Institute of Technology, China), Huaping Zhang (Beijing Institute of Technology, China), and Jianyun Shang (Beijing Institute of Technology, China)</i>	

Ynet: Deep Learning Model-Based Detection of Insulators and Self-Detonation Defects	86
<i>Yujiang Long (Guizhou Power Grid Co., Ltd., China), Ce Wang (Guizhou Power Grid Co., Ltd., China), Haibin Su (Fangxin Technology Co., Ltd., China), Rundong Gan (Guizhou Power Grid Co., Ltd., China), and Bin Liu (Fangxin Technology Co., Ltd., China)</i>	
Research on Target System Selection of Correlated Data Based on Bayesian Network	90
<i>Min Zhang (China Tobacco Zhejiang Industrial Co. LTD., China), Xin Xu (China Tobacco Zhejiang Industrial Co. LTD., China), and Qi Ji (China Tobacco Zhejiang Industrial Co. LTD., China)</i>	
The Design and Research of Intelligent Assembly Instructions in Virtual-Real Fusion Environment	94
<i>Quan Yu (Northwestern Polytechnical University, China), Xiaoliang Bai (Northwestern Polytechnical University, China), Sili Wei (Northwestern Polytechnical University, China), Yuxiang Yan (Northwestern Polytechnical University, China), Xiangyu Zhang (Northwestern Polytechnical University, China), Qiang Zhang (Northwestern Polytechnical University, China), Yongqiang Cao (Northwestern Polytechnical University, China), and Jiayu Huang (Northwestern Polytechnical University, China)</i>	
Author Index	101