

2023 IEEE International Conference on Robotics and Biomimetics (ROBIO 2023)

**Koh Samui, Thailand
4-9 December 2023**

Pages 1-546



**IEEE Catalog Number: CFP23581-POD
ISBN: 979-8-3503-2571-3**

**Copyright © 2023 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:	CFP23581-POD
ISBN (Print-On-Demand):	979-8-3503-2571-3
ISBN (Online):	979-8-3503-2570-6

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

TABLE OF CONTENTS

Model Identification and Validation of Cascade Control Schemes for a Differential Drive Mobile Robot <i>Bhalekar Vaibhav Bhausaheb, PS Saikrishna</i>	1
Development of an Electromagnetic Haptic Display System for the Visually Impaired <i>Xavier J. Blake, Manukid Parnichkun</i>	7
Combined Active and Passive Adaptive Variable Admittance Compliant Control for Space Robotic Manipulators <i>Hang Gao, Xiaodong Zhang, Chao Ma, Cheng Zhou</i>	13
An Improved Local Integration Algorithm for Polarization Gradient Fields <i>Zhiying Tan, Xu Tao, Yan Ji, Weifeng Kong, Wenbo Fan, Linsen Xu, Xiaobin Xu</i>	21
Relative Pose Detection of Pipe Interfaces Based on Point Laser Ranging Sensors <i>Yuhan Hou, Pengcheng Ye, Wenda Ye, Shixin Mao, Yisheng Guan, Haifei Zhu</i>	27
Kernel-Based Attention Network for Point Cloud Compression <i>Yang Yuan, Xieyanli Chen, Chenghao Shi, Yunxiao Lv, Huimin Lu, Junhao Xiao</i>	33
ABatRe-Sim: A Comprehensive Framework for Automated Battery Recycling Simulation <i>Huanqing Wang, Kaixiang Zhang, Keyi Zhu, Ziyou Song, Zhaojian Li</i>	40
Design and Experimental Evaluation of WLR-III <i>Xu Li, Yili Fu</i>	48
Development and Depth Control of a New Solar AUV <i>Zhiqing Li, Yulin Yang, Qinghan Hu, Huaying Zhu</i>	54
A Model for Cognitively Valid Lifelong Learning <i>Hanne Say, Erhan Oztop</i>	60
Improved African Vulture Optimization Algorithm for Parameter Optimization of Mars Rotorcraft Attitude Controllers <i>Zhiqing Li, Xin Wang, Xue Zhao, Yulin Yang</i>	67
Assistive Upper-Limb Control Using a Novel Measure of Human Muscular Manipulability Based on Force Envelopes <i>Rafael J. Escarabajal, Elena París, Tadej Petric, Ángel Valera, Vicente Mata, Jan Babic</i>	73
Automatic Control System for Reach-To-Grasp Movement of a 7-DOF Robotic Arm Using Object Pose Estimation with an RGB Camera <i>Shuting Bai, Jiazhen Guo, Yinlai Jiang, Hiroshi Yokoi, Shunta Togo</i>	81
Servo-Based High-Speed Alignment Software Using EGM Interface <i>Yingjie Qian, Diamond Dong</i>	87
Ground-Challenge: A Multi-Sensor SLAM Dataset Focusing on Corner Cases for Ground Robots <i>Jie Yin, Hao Yin, Conghui Liang, Haitao Jiang, Zhengyou Zhang</i>	93
EVEN: An Event-Based Framework for Monocular Depth Estimation at Adverse Night Conditions <i>Peilun Shi, Jiachuan Peng, Jianing Qiu, Xinwei Ju, Frank Po Wen Lo, Benny Lo</i>	98

Real-Time 3D Semantic Instance Segmentation SLAM	105
<i>Zihao Pan, Junyi Hou, Lei Yu</i>	
DeFCN-Nano: An End-To-End Real-Time Object Detection for Insulator Defects.....	111
<i>Xiongxin Zou, Yimin Zhou</i>	
An Improved Actor-Based Programming Framework for Simultaneous Management of Multiple Heterogeneous Robot Swarms.....	117
<i>Wei Yi, Bin Di, Ruihao Li, Mengyuan Dai, Xiaodong Yi, Yanzhen Wang, Xuejun Yang</i>	
A Self-Powered and Wearable Pneumatic Artificial Muscle Device Using Recycled Walking Energy	125
<i>Ziqi Zhang, Shanshan Li, Wei Yu, Shijie Guo</i>	
Vehicle Trajectories Prediction Via Nearest Neighbor Historical Behavior	131
<i>Wanting Wang, Qieshi Zhang, Xuesong Li, Jian Tang, Dong Liu, Jun Cheng</i>	
Multi-Object Detection, Tracking and Prediction in Rugged Dynamic Environments	137
<i>Shixing Huang, Zhihao Wang, Junyuan Ouyang, Haoyao Chen</i>	
Dynamical Modelling of a Hyper-Redundant Manipulator with a Hybrid Degree-Of-Freedom Configuration.....	143
<i>Ningyuan Luo, Nailong Bu, Chao Liu, Zhenhua Xiong</i>	
Safe and Robust Human Following for Mobile Robots Based on Self-Avoidance MPC in Crowded Corridor Scenarios.....	149
<i>Yinuo Song, Qianyi Zhang, Zhengxi Hu, Jingtai Liu</i>	
Design of a Small-Scale Locust-Inspired Robot Capable of Jump-Gliding Locomotion.....	155
<i>Weitao Zhang, Zisen Wei, Yi Xu, Liang Peng, Changwen Dong, Yanzhou Jin, Qing Shi</i>	
Double-Layer Multi-Robot Path Planner Based on Deep Multiple Dueling Network Agent.....	161
<i>Mingjun Zhao, Qichao Wu, Weiwei Zhao, Rui Lin</i>	
Generation of an Adaptive Ascending Step for a Lower Limb Exoskeleton	169
<i>Marina Rainieri, Andrea Tagliavini, Corrado Guarino Lo Bianco</i>	
Design and Experiments of a Hexapod Robot for Inspection of Wind Turbine Blades.....	176
<i>Chengzhang Gong, Li Fan</i>	
A Pair of End-Effectors for Unfold-To-Fold a Fabric by Dual-Arm Manipulation.....	182
<i>Shunji Fujihara, Yuta Yoshioka, Kimitoshi Yamazaki</i>	
A 2-DoF Elbow Exoskeleton with Spherical Scissor Mechanism for ADL Assistance.....	188
<i>Thomas M. Kwok, Hilary Hy Cheng, Haoyong Yu</i>	
Pipe-Finder: Adaptive, Lightweight Pipe Robot Integrating Origami Anisotropic Stiffness Structure	194
<i>Yifei Chen, Deyu Yang, Ziyu Liu, Boyu Yang, Hongqiang Wang</i>	
Design and Kinematic Calibration of a New 4-DOF Spinal Surgery Robot	200
<i>Wenbo Man, Hongjian Yu, Shuo Feng, Zhijiang Du</i>	
Learning RL Policies for Anticipative Assistive Robots by Simulating Human-Robot Interactions in Real Scenarios Using Egocentric Videos.....	206
<i>Silvia Abal-Fernández, César Caramazana-Zarzosa, María Beatriz Loureiro-Casalderrey, Santiago Martínez, Carlos Balaguer, Fernando Díaz-De-María, Iván González-Díaz</i>	

VitRob Pipeline: A Seamless Teleoperation Pipeline for Advanced Virtual Reality - Robot Interface Applied for Precision Agriculture.....	214
<i>Mahmoud Abdulsalam, Nabil Aouf</i>	
The Robotic Socket: A Robotic Design and Biomimetic Application of an Auto-Adjusting Prosthetic Socket Prototype for Above-Knee Amputees	220
<i>Michael Rose, Olivia Carnochan, Rhys Gamlin, Liam Tomlinson, Aghil Jafari, Appolinaire Etoundi</i>	
Visual Servoing Using Cosine Similarity Metric	226
<i>Wenbo Ning, Yecan Yin, Xiangfei Li, Huan Zhao, Yunfeng Fu, Han Ding</i>	
Discrete States-Based Trajectory Planning for Nonholonomic Robots	233
<i>Ziyi Zou, Ziang Zhang, Zhen Lu, Xiang Li, Mingyi Wang, You Wang, Jie Hao, Guang Li</i>	
Barometric Soft Tactile Sensor for Depth Independent Contact Localization.....	241
<i>Leone Costi, Fumiya Iida</i>	
Learning-Based Trajectory Tracking Control of USV Based on Multi-Source Data	247
<i>Haoming Long, Zhenfeng Xue, Tao Huang, Yong Liu</i>	
A Variable Admittance Control Strategy for Robotic Constraints Avoidance Based on Virtual Fixtures.....	255
<i>Zeyu Li, Hongxing Wei, Chengguo Liu, Haochen Zhang, Gang Liu</i>	
A Hybrid Algorithm of UAV Path Planning for Rescue in Bushfire Environments	261
<i>Jingwen Wei, Siyuan Li</i>	
Service Robot Active Object Detection Based on Spatial Exploration Using Deep Recurrent Q-Learning Network.....	267
<i>Ning Yang, Fei Lu, Boyuan Yu, Fujing Yao, Deyuan Zhang, Guohui Tian</i>	
Team Orienting Problem with Dynamic Reward and Mobile Support Station.....	273
<i>Hao Luo, Yimin Zhou</i>	
Moving Object Localization Based on the Fusion of Ultra-WideBand and LiDAR with a Mobile Robot	280
<i>Muhammad Shalihan, Zhiqiang Cao, Khattiya Pongsirijinda, Lin Guo, Billy Pik Lik Lau, Ran Liu, Chau Yuen, U-Xuan Tan</i>	
Dynamic Modeling and Trajectory Control of a Soft Cylindrical Rolling Robot with Shape Morphing-Based Steering Mechanism	288
<i>Mahdi Haghshenas-Jaryani</i>	
Timoshenko Beam-Based Analytical Formulation and Numerical Simulation of Continuum Soft-Bodied Robotic Arms	294
<i>Mahdi Haghshenas-Jaryani</i>	
Hydrodynamics Study of Standing-And-Hovering Behavior of Dolphins Based on Collaborative Mode.....	300
<i>Ming Lei, Han Yan, Zhihan Li, Zilong Zhou, Qingyuan Gai, Dan Xia</i>	
Research on Key Influencing Factors of Hydrodynamic Performance for a Class of Planar Linkage Mechanism Cycloidal Propellers.....	306
<i>Han Yan, Ming Lei, Zhihan Li, Zilong Zhou, Qingyuan Gai, Dan Xia</i>	

Speech-Image Based Multimodal AI Interaction for Scrub Nurse Assistance in the Operating Room	312
<i>Wing Yin Ng, Han Yi Wang, Zheng Li</i>	
Enhancing Convergence Speed of Multi-Agent Formation Control Via Laplacian Functions.....	318
<i>Qilong Zhang, Binglin He, Yangyang Zhao, Song Liu, Yang Wang</i>	
Trajectory Prediction for Surrounding Traffic Participants Via Local Perception and Attentive Map Encoding.....	324
<i>Xuepu Zeng, Mingyu Gao, Zhiwei He, Yuxiang Yang</i>	
A Novel Energy Saving Ankle-Foot Prosthesis Based on Direct-Drive Electro-Hydraulic System.....	330
<i>Jicheng Wang, Qitao Huang, Yiming Liu</i>	
An Integrated Real-Time Monocular Human Pose & Shape Estimation Pipeline for Edge Devices	336
<i>Hyung-Joon Jeon, Sebastian Lang, Christian Vogel, Roland Behrens</i>	
Design and Dynamic Modeling of a Tailless Flapping-Wing Micro Air Vehicle with Gravity Center Position Attitude Control.....	342
<i>Xinyun Luo, Shengjie Xiao, Yuchen Xia, Yuhong Sun, Chutian Wang, Huichao Deng, Xilun Ding</i>	
A Method for Collision-Free UAV Navigation Around Moving Obstacles Over an Uneven Terrain	348
<i>Jingwen Wei, Siyuan Li</i>	
Comparing Human Motion Forecasts in Moving Horizon Trajectory Planning of Collaborative Robots.....	354
<i>Heiko Renz, Maximilian Krämer, Torsten Bertram</i>	
A Trajectory Planning Framework for Experimental Module Manipulator On-Orbit Servicing.....	360
<i>Boyu Ma, Baoshi Cao, Yang Liu, Yuteng Xie, Xiaohang Yang, Wei Wang, Handong Hu, Xiaokai Zhou, Yiming Ji, Zhengpu Wang, Mengfei Li, Haoran Sun, Wandong Sun, Zongwu Xie</i>	
Mechanism Design and Walking Stability Study of (2UPS-U) +R Series-Parallel Hybrid Bionic Wheel-Legged Quadruped Robot.....	368
<i>Shanshan Li, Hongbo Wang, Dong Li, Minghao Li, Lianqing Li, Yu Tian, Jianye Niu</i>	
Uncertainty Estimation for Predictive Collision Avoidance in Human-Robot Collaboration	374
<i>Heiko Renz, Maximilian Krämer, Torsten Bertram</i>	
Novel Biomimetic Mechanism Inspired by Snake: Twisted String and Spiral Hose Mechanism	380
<i>Zeyu Long, Hidefumi Wakamatsu, Yoshiharu Iwata</i>	
FastVL: Fast Moving 3D Indoor Reconstruction System Based on SE(2) Constraint for Visual- Laser Fusion	386
<i>Junyi Hou, Zihao Pan, Lei Yu</i>	
Optimized UAV Navigation Overcoming LoS Obstructions for Maximized Power Grid Tower Inspections in Mountainous Terrains	392
<i>Zixuan Fang</i>	
Robot Plane Grasping Pose Detection Based on U ² -Net	398
<i>Qingsong Yu, Xiangrong Xu, Yinchen Liu, Hui Zhang</i>	
Evaluation of Visual and Audio Notifications in the User Command Interface Integrated with the Industrial Exoskeleton Shoulder-SideWINDEr	404
<i>Olmo A. Moreno Franco, Daegeun Park, Christian Di Natali, Darwin G. Caldwell, Jesus Ortiz</i>	

9-DOF Serial Robotic Arm for Space Environments and Its Inverse Kinematics Analysis	411
<i>Zhiqing Li, Xue Zhao, Xin Wang, Qinghan Hu, Hongxing Zhou</i>	
Design and Locomotion Characteristic Analysis of a Novel Tensegrity Hopping Robot.....	418
<i>Jixue Mo, Changqing Gao, Hao Fang, Qingkai Yang</i>	
Enhanced EEG-FNIRS Classification Through Concatenated Convolutional Neural Network with Band Analysis.....	426
<i>Chayut Bunterngchit, Jiaxing Wang, Thanaphon Chearanai, Zeng-Guang Hou</i>	
Echo-Based Dynamic Trajectory Generation for Customised Unilateral Exoskeleton Applications	432
<i>Annika Guez, Saksham Dhawan, Ravi Vaidyanathan</i>	
Spatial Or Temporal Signal Considered for Gait Recognition Based on Optic-Fiber Sensor.....	438
<i>Hanze Jia, Hongtao Ma, Yang Cheng, Linhang Ju, Yanggang Feng, Wuxiang Zhang</i>	
Uncertainty in Bayesian Reinforcement Learning for Robot Manipulation Tasks with Sparse Rewards.....	444
<i>Li Zheng, Yanghong Li, Yahao Wang, Guangrui Bai, Haiyang He, Erbao Dong</i>	
Neural-ILQR: A Learning-Aided Shooting Method for Trajectory Optimization	450
<i>Zilong Cheng, Yulin Li, Kai Chen, Jianghua Duan, Jun Ma, Tong Heng Lee</i>	
Integrated Behavior Planning and Motion Control for Autonomous Vehicles with Traffic Rules Compliance.....	457
<i>Haichao Liu, Kai Chen, Yulin Li, Zhenmin Huang, Jianghua Duan, Jun Ma</i>	
An Improved Slime Mold Algorithm for Cooperative Path Planning of Multi-UAVs	464
<i>Hui Xiong, Banglu Ge, Jinzhen Liu</i>	
Active Complaint Control for Smooth and Quick Connector Assembly.....	470
<i>Jun Wu, Yu He, He Wang, Qiyu Wang, Shaowei Fan</i>	
Task-Level Intelligent Human-Robot Interaction for Assisting Multi-Objective Autonomous Grasping Decision with Quadruped Robots	475
<i>Qifan Zhang, Jiamin Guo, Hui Chai, Guoxuan Zhang, Zhiyuan Yang, Ming Yuan, Qin Zhang, Yueyang Li, Yibin Li</i>	
Development of an Inchworm-Inspired Soft Robot with Active Friction Control of Wheels Using Double-Network Gel Brakes	482
<i>Moses Gladson Selvamuthu, Riichiro Tadakuma</i>	
Backstepping Sliding Mode Stabilization Controller for Underactuated Unmanned Surface Vehicle Based on Disturbance Observer	489
<i>Zhenzhen Tan, Wangjie Zhou, Jie Chen, Yang Xian, Quan Zhang, Long Li, Tao Yue, Yingzhong Tian, Sicheng Yi</i>	
An Industrial Bin Picking Framework for Assembly Tasks	495
<i>Jizhong Liang, Han Sun, Xinhao Chen, Yuanze Gu, Qixin Cao</i>	
Decentralized Reinforcement Learning Multi-Gait Locomotion Control for Quadruped Robots.....	501
<i>Xingcheng Pu, Congde Zhang</i>	
Rushing-Hopping Mode for Nondestructive Intracellular Electrophysiological Recordings	507
<i>Shengjie Yang, Cong Wu, Wen Jung Li, King Wai Chiu Lai</i>	

Motion Generation for Shaping Deformable Linear Objects with Contact Avoidance Using Differentiable Simulation	514
<i>Changjian Ying, Kimitoshi Yamazaki</i>	
ScanTrimmer: An Online Dynamic Objects Removal Framework in Laser Scan for Robust Localization	522
<i>Jing Wang, Yifan Duan, Jianmin Ji</i>	
An Adaptive Kalman Filter for Physiological Tremor Suppression in Robot-Assisted Minimally Invasive Surgery	528
<i>Daolong Yang, Li Jiang, Kun Xu</i>	
Active 6-DoF Electromagnetic Pose Tracking Using Orientation Control of the Magnetic Source	534
<i>Yile Shen, Shuda Dong, Dekang Liu, Kaixiang Zhang, Heng Wang</i>	
SA-GCNN: Spatial Attention Based Graph Convolutional Neural Network for Pedestrian Trajectory Prediction	541
<i>Xuesong Li, Qieshi Zhang, Wanting Wang, Jian Tang, Dong Liu, Jun Cheng</i>	
Mechanical Design and Experimental Analysis of a Soft Snake-Like Robot Based on Bellows-Type Soft Actuators	547
<i>Lijun Meng, Junjie Zhou, Huichen Ma, Jianghao Jiang</i>	
Pose-Shape Unified Planning of Cable-Driven Serial Manipulators Based on Multiple Arm-Angle Construction	553
<i>Wenshuo Li, Bin Liang, Boyang Lin, Junxiang Li, Wenfu Xu</i>	
Optimal Planning of a Space Cleaning Robot for Active GEO Debris Removal Mission	559
<i>Yang Zhou, Chunlong Zhang, Minhong Wan</i>	
An Ultra-Flexible Curvature Sensor Without Relying on Elongation	565
<i>Sitong Lu, Yun Wang, Jian Jiao, Haibo Wang</i>	
Development of End Multi-Fingered Manipulator with Flexible Device	571
<i>Zenghao Chen, Ran Shi, Pengfei Wu, Sheng Tao, Dan Yan, Ze Cui</i>	
Towards Robust Modality Agnostic Pose Estimation Via Unbiased Data Fusion	577
<i>Amar Ali N. Khan, Nabil Aouf</i>	
Investigation of Bio-Inspired Tail-First Swimming Using Numerical and Robotic Models	584
<i>Karthick Dhileep, Qiuxiang Huang, Fangbao Tian, John Young, Joseph C. S. Lai, Donald Sofge, Sridhar Ravi</i>	
Velocity Field: An Informative Traveling Cost Representation for Trajectory Planning	590
<i>Ren Xin, Jie Cheng, Sheng Wang, Ming Liu</i>	
A Robust and Efficient EKF-Based GNSS-Visual-Inertial Odometry	596
<i>Jie Yin, Haitao Jiang, Jiale Wang, Dayu Yan, Hao Yin</i>	
Robotic Thermoregulation for Material Identification Using Recycled Inner-Generated Motor Heat	601
<i>Yukiko Osawa, Yukiyasu Domae, Ichiro Ogura, Yoshiyuki Furukawa, Abderrahmane Kheddar</i>	
Tightly-Coupled LiDAR-Visual SLAM Based on Geometric Features for Mobile Agents	608
<i>Ke Cao, Ruiping Liu, Ze Wang, Kunyu Peng, Jiaming Zhang, Junwei Zheng, Zhifeng Teng, Kailun Yang, Rainer Stiefelhagen</i>	

Programmable Pressure Pneumatic System for Soft Robots	616
<i>Xinyu Xiao, Kanghe Huang, Renjie Zhu, Yahui Xue, Wenjin Wang, Hongqiang Wang, Jian S. Dai</i>	
Development of a Leg-Wheel Mobile Robot Using Switchable Permanent Magnetic Wheels for Bridge Inspection	622
<i>Chinvudh Uahchinkul, Satoshi Muramatsu, Katsuhiko Inagaki</i>	
Robust Signal Temporal Logic-Based Planning for Uncertain External Events.....	628
<i>Shumpei Tokuda, Masaki Yamakita, Hiroyuki Oyama, Rin Takano</i>	
Fatigue Performance and Impact Toughness of PBF-LB Manufactured Inconel 718	635
<i>Timo Rautio, Matias Jaskari, Haider Ali Bhatti, Aappo Mustakangas, Markku Keskitalo, Antti Järvenpää</i>	
Performance of BVC-Based Obstacle Avoidance for a Quadrotor Relative to LiDAR Data Volume	641
<i>Shosuke Inoue, Kimiko Motonaka, Seiji Miyoshi</i>	
A Novel Robotic Negative Pressure Therapy Method for Lymphedema Treatment on Unstructured Surfaces	647
<i>Zihao Li, Zhenguo Nie, Huichan Zhao, Xin-Jun Liu</i>	
A Data-Driven Phantom Zeros Prediction Algorithm for Traction Force Sensor in Kinesthetic Demonstration	653
<i>Lei Yao, Bing Chen, Moyun Liu, Jingming Xie, Youping Chen, Lei He</i>	
Learning to Traverse Challenging Terrain Using BGRU-Attention	659
<i>Huazheng Liu, Yanbin Xu, Jiajun Dong, Feng Dong</i>	
METREE: Max-Entropy Exploration with Random Encoding for Efficient RL with Human Preferences	665
<i>Isabel Y. N Guan, Xin Liu, Gary Zhang, Estella Zhao, Zhenzhong Jia</i>	
Carrier Bot: A UWB-Based Human Following Mobile Platform for Intra-Office Transport with an Intuitive Teach-And-Repeat Programming.....	673
<i>Dingzhi Zhang, Lukas Birner, Vinicius Zinkernagel, Christoph Rehekampff, Darius Burschka, Tim C. Lueth</i>	
Analysis of Rock-Climbing Fish Swimming and Design of a Novel Wire-Driven Propeller	679
<i>Hengshen Qin, Chuang Zhang, Wenjun Tan, Lianchao Yang, Ruiqian Wang, Yiwei Zhang, Lianqing Liu</i>	
Steering Through Waters: Exploring Turning Control Techniques for Soft Underwater Snake Robots.....	684
<i>Hang Shi, Wenlong Cui, Yali Meng, Shuting Wang, Yangmin Xie</i>	
A Tube Arranging System with a Generic and Efficient Grasp Reasoning Method	691
<i>Ziqi Xu, Zixin Lin, Yi Han, Yongliang Shi, Gan Ma</i>	
A Soft Actuation Method for Underwater Robot Based on Dielectric Elastomer Actuator.....	697
<i>Ruiqian Wang, Chuang Zhang, Yiwei Zhang, Wenjun Tan, Lianchao Yang, Hengshen Qin, Lianqing Liu</i>	
Automatic Microinjection of Batch Zebrafish Larvae Based on Precise Positioning of the Yolk	703
<i>Peiyao Zhang, Can Wang, Yaowei Liu, Xin Zhao, Mingzhu Sun</i>	

Design of a Surgical Human-Machine Natural Interaction Assistance System Based on Holographic Reality	709
<i>Jianren Chen, Tianzuo Liu, Xiaoxue Sun, Hongpeng Wang, Jianda Han</i>	
A Preliminary Study on the Functional Coupling Between Nerve and Blood Microcirculation for Applications in Rehabilitation Robots.....	715
<i>Qingge Li, Yuanzhe Dong, Yuxiang Zhang, Xin Wang, Naifu Jiang, Jianping Huang, Han Cui, Lan Tian, Yue Zheng, Xiangxin Li, Lin Wang, Guanglin Li, Wenyuan Liang, Liang Peng, Peng Fang</i>	
Simulation of Vision-Based Tactile Sensors with Efficiency-Tunable Rendering.....	721
<i>Yuhao Sun, Shixin Zhang, Jianhua Shan, Lei Zhao, Xiangbo Wang, Fuchun Sun, Yiyong Yang, Bin Fang</i>	
Research on Dance Movement Recognition and Assessment Through Human Pose Estimation	727
<i>Bo Sheng, Xiaohui Chen, Xinyue Zhang, Jing Tao, Huijia Qu</i>	
Optimized Design and Experimental Study of Shank Structure of Biped Robot	733
<i>Meijuan Qin, Lingyu Kong, Daming Nie, Hongjian Jiang, Yu Zhang, Yili Fu</i>	
Optimum Design and Stiffness Analysis of a 3-RCU Parallel Manipulator.....	738
<i>Chenhai Xu, Fugui Xie, Xin-Jun Liu</i>	
Automated Triaxial Robot Grasping System for Motor Rotors Using 3D Structured Light Sensor.....	743
<i>Jixin Liang, Yuping Ye, Siyuan Chen, Zhan Song</i>	
Automatic Parking for a Surgical Robotic Patient-Side Cart Using Monocular Vision	749
<i>Yulin Zhang, Baibo Wu, Chang Zhou, Kai Xu</i>	
A Quick Means for the Burnt Skin Area Calculation Via Multiple-View Structured Light Sensors	755
<i>Di Wu, Yuping Ye, Feifei Gu, Zhan Song</i>	
Spring Loaded Inverted Pendulum Model Based Musculoskeletal Biped Robot Design and Sequential Jumping Experiment.....	761
<i>Yiqi Li, Yelin Jiang, Koh Hosoda</i>	
RCS: Automatic Navigation Framework for Legged Robots with Incremental RGB and Consistent Semantics Information.....	767
<i>Dayu Liu, Teng Chen, Guoteng Zhang, Zhicheng Zhao, Xuwen Rong, Yong Fan, Yibin Li</i>	
Closed-Loop Identification of Human Behavior in a Position Tracking Task Using Recurrent Neural Network	774
<i>Suzuka Seki, Jun Ishikawa</i>	
Non-Holonomic Trajectory Planning Method for Free-Floating Space Robot Via a Control Parameterization Approach.....	782
<i>Gaoqi Liu, Yu Wang, Bin Li</i>	
Structural Design and Analysis of Magnetic Driven Coaxial Dual Propeller Capsule Robot	788
<i>Wenzheng Ding, Xingwei Zhao, Qing Ling, Bo Tao</i>	
An Improved ORB-GMS Image Feature Extraction and Matching Algorithm.....	793
<i>Zhiying Tan, Wenbo Fan, Weifeng Kong, Xu Tao, Linsen Xu, Xiaobin Xu</i>	
Modeling and Analysis of Surgical Parallel Continuum Manipulator.....	799
<i>Chao Qian, Jinpeng Diao, Rong Cong, Zhuoheng Li, Xingguang Duan, Changsheng Li</i>	

DenseXFormer: An Effective Occluded Human Instance Segmentation Network Based on Density Map for Nursing Robot	805
<i>Sihao Qi, Jiexin Xie, Haitao Yan, Shijie Guo</i>	
A Closed-Loop Multi-Perspective Visual Servoing Approach with Reinforcement Learning	811
<i>Lei Zhang, Jiacheng Pei, Kaixin Bai, Zhaopeng Chen, Jianwei Zhang</i>	
A Highly Integrated Shape Memory Alloy Actuator with Precision Real-Time Self-Sensing Control	818
<i>Ze Wang, Zihang Shang, Chuxiong Hu, Yu Zhu</i>	
Spatio-Temporal Transformer-Based Reinforcement Learning for Robot Crowd Navigation	824
<i>Haodong He, Hao Fu, Qiang Wang, Shuai Zhou, Wei Liu, Yang Chen</i>	
A Linear Magnetic Soft Actuator with Image-Based Force Sensing for Mechanical Characterization of Soft Materials	831
<i>Wei Zhang, Lea Decker, Tanja Brigadski, Bernd Gundelsweiler, Sven Urschel</i>	
Augmented Reality Enabled Telepresence Framework for Intuitive Robotic Teleoperation.....	837
<i>Zheng Xu, Zecai Lin, Huanghua Liu, Qingsong Ren, Anzhu Gao</i>	
Vision-Based Autonomous Detecting and Grasping Framework for the Fully-Actuated Aerial Manipulator	843
<i>Shuang Hao, Guangming Song, Yue Gu, Juzheng Mao, Zichao Ji, Shengyu Xie, Aiguo Song</i>	
Welding Seam Extraction from Point Cloud of Large-Sized Structural Steel Workpieces.....	849
<i>Haojun Zhao, Xiaoben Lin, Yue Liu, Yunjiang Lou</i>	
Learning-Model-Based Control for Robot Manipulators Sensorless Kinesthetic Teaching Using Sparse Feature Dynamics	855
<i>Chenglong Yu, Xuyang Yu, Tianyi Li, Chunguang Fan, Bo Zhao, Jiubin Tan</i>	
Thermally Drawn Monolithic Polymer Continuum Robot with Laser Cutting Profile	863
<i>Huanghua Liu, Yun Zou, Zheng Xu, Anzhu Gao</i>	
A Modular Framework for Robot Embodied Instruction Following by Large Language Model	869
<i>Long Li, Hongjun Zhou, Mingyu You</i>	
A Collision Avoidance Path Planning Method for 7-DOF Space Manipulator	875
<i>Xu Han, Guocai Yang, Minghe Jin, Qi Wang</i>	
Autonomous Trajectory Planning Based on Bézier Curve with Curvature Constraints and Piecewise-Jerk Speed-Time Optimization.....	881
<i>You Wang, Ziyi Zou, Ziang Zhang, Xiaoqing Guan, Boyu Lin, Xiang Li, Guang Li</i>	
Controllability Analysis and Stabilization of Untethered Tumbler Floating ROV	889
<i>Junda Huang, Haiwen Wu, Hanwen Cao, Jianshu Zhou, Yunhui Liu</i>	
A Resource Scheduling Strategy for Cloud Robotics System with an Improved Whale Optimization Algorithm	895
<i>Zhonghua Miao, Chao Zhang, Nan Li, Chuangxin He</i>	
Design and Implementation of a Robotic System for Oropharyngeal Swab Sampling Application.....	901
<i>Jiaxiang Dong, Xiaowei Lu, Lihong Duan, Qi Liu, Zhi Zhang, Zhen Liu, Xin Zhang, Xiaohua Zhang, Chunbao Wang, Jing Guo, Jianjun Long, Yongtian Lu, Jianjun Wei, Peng Li, Zhengzhi Wu, Quanquan Liu, Xuezhi Zhao</i>	

Development of a Bedside Rehabilitation Robot for Stroke Survivors	907
<i>Xiaowei Lu, Quanquan Liu, Lihong Duan, Jiaxiang Dong, Zhi Zhang, Zhen Liu, Xin Zhang, Xiaohua Zhang, Chunbao Wang, Jing Guo, Jianjun Wei, Jianjun Long, Yulong Wang, Peng Li, Xuezhi Zhao, Zhengzhi Wu</i>	
A Multiple Degrees-Of-Freedom Crawling Robot Driven by a Square Planar Dielectric Elastomer.....	913
<i>Longhui Pan, Yangyang Du, Weiwei Zhao, Chongjing Cao, Yingtian Li, Xing Gao</i>	
A Magnetic Coupling Pneumatic Diaphragm Pump Driven by Dielectric Elastomers	919
<i>Jin Dai, Yangyang Du, Weiwei Zhao, Chongjing Cao, Yingtian Li, Xing Gao</i>	
Visual Navigation for Fast Trajectory Planning and Accurate Trajectory Following Based on Legged Robots in Unknown Environments.....	925
<i>Rundong Zhang, Yong Fan, Hongmin Jin, Ronghua Zhao, Dayu Liu</i>	
Folding for Stiffening: A Novel Corrugated Electro-Adhesive Clutch.....	932
<i>Youzhan Wang, Chuang Wu, Xiaozheng Li, Yingtian Li, Xing Gao, Krishna Manaswi Digumarti, Chongjing Cao</i>	
Design of a 3D Printed VT-Type Shape Memory Alloy Actuation Module for a Multi-Posture Actuator.....	938
<i>Xiaozheng Li, Xing Gao, Yingtian Li, Chongjing Cao</i>	
3D Semantic Segmentation for Grape Bunch Point Cloud Based on Feature Enhancement.....	944
<i>Jiangtao Luo, Dongbo Zhang, Tao Yi</i>	
Design and MLP-Based Kinematics Modeling of a Gastrointestinal Endoscopy Robot.....	950
<i>Wentao Jin, Min Tan, Yong Liu, Jing Xiong, Zeyang Xia</i>	
Optimal Design of Robust Wireless Power Transfer Links for Human-Machine Interface	956
<i>Yujun Wu, Yun Fang, Weichao Guo, Xinjun Sheng</i>	
Fast Visual Servo for Rapidly Seafood Capturing of Underwater Delta Robots	962
<i>Maosheng Yang, Lin Xiao, Ce Chen, Yangyi Hu, Yi Sun, Huayan Pu, Wenchuan Jia</i>	
Dynamic Identification for a Manipulator Model Based on Stribeck Friction Using the Quasi-Newton Iterative Method.....	968
<i>Feng Xiao, Feilong Zhang, Bing Han, Hualiang Zhang</i>	
Inertial Piezoelectric Actuation of a Needle Insertion Device for Minimally Invasive Surgery.....	976
<i>Yuzhou Duan, Hongtao Peng, Yuchuan Zhu, Yayi Shen, Jie Ling</i>	
Dynamic Modeling and Control of a Soft Robotic Arm Using a Piecewise Universal Joint Model	982
<i>Zhanchi Wang, Gaotian Wang, Xiaoping Chen, Nikolaos M. Freris</i>	
Design and Variable-Curvature Kinematic Modeling of a New Segmented Flexible Assistive Hand Exoskeleton	988
<i>Can Zhang, Guotao Li, Xiong Li, Long Cheng</i>	
Research on Path Planning of Breast Ultrasound Examination Robot	994
<i>Xinran Zhang, Haiyan Du, Yongde Zhang, Guoqiang Gao</i>	
Navigation Strategy of Last-Mile Delivery Robot and Its Application to Disabled Ramp Access.....	1000
<i>Lunan Zheng, Mingxing Wen, Jiajie Guo, Jun Zhang, Yingchong Ma, Danwei Wang</i>	
Fingertip Tactile Sensor Based on Velostat Piezoresistive Material	1006
<i>Pan Junjie, Huang Jincheng, Shi Yixiao, Meng Hailiang, Bao Guanjun</i>	

Development of a System Integrating Immersive VR and Vibrotactile Feedback to Reduce Visual Dependence in Postural Control: A Feasibility Study in Young Healthy Participants	1011
<i>Jing-Chen Hong, Kazuhiro Yasuda, Qiutung Xu, Hiroyasu Iwata</i>	
Design of a Compact Variable Stiffness Joint for Modular Lower Limb Assistive Exoskeleton	1016
<i>Shipei Cao, Youliang Cheng, Bo Sheng, Jing Tao</i>	
Reducing the Computational Cost of Transformers for Person Re-Identification	1022
<i>Wen Wang, Zheyuan Lin, Shanshan Ji, Te Li, Jason Gu, Minhong Wan, Chunlong Zhang</i>	
Learning Hand Gestures Using Synergies in a Humanoid Robot.....	1028
<i>Parthan Olikkal, Dingyi Pei, Bharat Kashyap Karri, Ashwin Satyanarayana, Nayan M. Kakoty, Ramana Vinjamuri</i>	
Pointing Performance Evaluation Experiment of Smartphone-Based Operation Methods for Real-World Clicker	1034
<i>Shinichiro Sakamoto, Keigo Noguchi, Satoshi Iwaki</i>	
Agile Vision Perception and Control Algorithm for Flexible Manufacturing Manipulator System	1041
<i>Kang Yuan, Xuegang Zhang, Li Yan, Hao Liu</i>	
DIF-LIM: A Dual Information Flow Network for Low-Light Image Enhancement	1049
<i>Mengjie Qin, Rong Yang, Zheyuan Lin, Nuo Xu, Te Li, Minhong Wan, Chunlong Zhang</i>	
RF-MvCare: RFID-Based 3D Human Pose Estimation for Non-Lineof-Sight Conditions.....	1055
<i>Junyi Liu, Jixiao Liu, Shijie Guo</i>	
Contact Force Estimation for Robotic Manipulators Based on Disturbance Kalman Filter	1061
<i>Pengcheng Ye, Yisheng Guan, Shixin Mao, Ping Wang, Haifei Zhu</i>	
A Gaze-Based Bilateral Teleoperation Framework for a Team of Mobile Robots	1067
<i>Juzheng Mao, Guangming Song, Linlin Cheng, Mingquan Zhang, Shengyu Xie, Shuang Hao, Aiguo Song</i>	
Design of Magnetorheological Brake with Adjustable Interdigitated Comb for Lower Limb Prostheses and Exoskeletons	1073
<i>Qiuyu Shi, Xuan Zhao, Haisu Liao, Yongji Lin, Ruisen Huang, Xinyu Wu, Fei Gao</i>	
Design of 3D-Printable Compliant Robotic Grippers Using Solid Geometry Library in MATLAB.....	1079
<i>Yilun Sun, Jan N. Rodewald, Tim C. Lueth</i>	
A Multi-Objective Optimization Trajectory Interpolation Method Based on Fifth-Degree B-Spline Curves.....	1085
<i>Qiang Yang, Xiaomeng Hu, Liang Du, Sheng Bao, Jianjun Yuan</i>	
Terrain Classification Based on Wheel-Terrain Interaction Measurements Using Aside-Wheel Camera	1091
<i>Feng Xue, Longteng Hu, Chen Yao, Jin Wei, Yunzhou Li, Peichen Wang, Zheng Zhu, Zhenzhong Jia</i>	
Cooperative Transportation of Tether-Suspended Payload Via Quadruped Robots Based on Deep Reinforcement Learning.....	1097
<i>Hongwu Zhu, Shunzhe Yang, Weiqi Wang, Xuchun He, Ning Ding</i>	
Gait Phase Recognition for Soft Exoskeleton Assistance Based on Inertial Sensors	1103
<i>Yong Liu, Jiaxin Wang, Zhendong Zhao, Lei Liu, Huanyu Deng, Shijie Guo</i>	

An Underwater Snake Robot that Does Not Consider Actuators' Waterproof: Design and Primary Experiments.....	1109
<i>Shah Darshankumar Rajendrakumar, Atsushi Kakogawa, Shugen Ma</i>	
A Real-Time Assistance System with Virtual-Real Fusion for Similar Components Assembly.....	1115
<i>Jinzhe Xue, Mingyu You, Hongjun Zhou, Zhifeng Qian</i>	
Stroke Synchronization of Underwater Modular Robot Through Physical Interaction.....	1121
<i>Kohei Nishikawa, Yuki Origane, Daisuke Kurabayashi</i>	
Hybrid6D: A Dual-Stream Transformer-CNN Approach for 6D Object Pose Estimation from RGB-D Images	1127
<i>Songhao Fu, Qiang Zhang, Xueying Sun, Mingmin Liu, Zhiwei Fan</i>	
A Pneumatically Driven Arm Motion Teaching System Using Visual and Torque Feedback	1133
<i>Yoshihide Tomita, Tetsuro Miyazaki, Maina Sogabe, Kenji Kawashima</i>	
A Novel Under-Actuated Robotic Hand for Production Tasks.....	1140
<i>Xinhao Chen, Jose Victorio Salazar Luces, Alberto Elias Petrelli Barceló, Yasuhisa Hirata</i>	
Free Performance Boost for Voting-Based 3D Object Detection in Point Clouds.....	1147
<i>Rong Yang, Mengjie Qin, Zheyuan Lin, Chunlong Zhang, Te Li, Minhong Wan</i>	
Feature Fusion Module Based on Gate Mechanism for Object Detection.....	1153
<i>Zepeng Sun, Dongyin Jin, Jian Deng, Mengyang Zhang, Zhenzhou Shao</i>	
Ophthalmic Surgical Robot Design and Calibration Methods.....	1159
<i>Zhibin Fan, Jiayuan Wang, Mengyao Liu, Jiahui Yang, Jie Zhao, He Zhang</i>	
A Joint Tracking System: Robot is Online to Access Surveillance Views.....	1165
<i>Zheyuan Lin, Shanshan Ji, Wen Wang, Mengjie Qin, Rong Yang, Minhong Wan, Jason Gu, Te Li, Chunlong Zhang</i>	
Selective Geometric Modification for Independent Actuation of Multiple Soft Magnetic Manipulators.....	1171
<i>Zaneta Koszowska, Alistair Bacchetti, Peter Lloyd, Giovanni Pittiglio, James H. Chandler, Pietro Valdastri</i>	
Geometric Design of a Kirigami Gripper with Form-Enclosing Grasping Mode	1177
<i>Bingyan Hu, Liang Du, Mingyuan Wang, Sheng Bao, Jianjun Yuan, Shugen Ma</i>	
Blind Walking Balance Control and Disturbance Rejection of the Bipedal Humanoid Robot Xiao-Man Via Reinforcement Learning	1183
<i>Chao Ji, Diyuan Liu, Wei Gao, Shiwu Zhang</i>	
Adaptive Tuning of Robotic Polishing Skills Based on Force Feedback Model.....	1190
<i>Yu Wang, Zhouyi Zheng, Chen Chen, Zeheng Wang, Zhitao Gao, Fangyu Peng, Xiaowei Tang, Rong Yan</i>	
ECH: An Enhanced Cart Histogram for Place Recognition	1197
<i>Pengming Liu, Sheng Bao, Liang Du, Jianjun Yuan, Hongkai Zhang, Ruiping Luo</i>	
Path-Planning for the Human-Arm-Like Collaborative Robot with the Capability of Infinite Rotation	1203
<i>Yusheng Yang, Jiajia Liu, Qiaoni Yang, Hang Shi, Yangmin Xie</i>	

Magnetically Driven Capsule Robot for Multi-Targeted Biopsy and Drug Delivery in Stomach.....	1210
<i>Zhihui Xu, Tanyong Wei, Zongze Li, Ding Huang, Shoubin Liu, Chengzhi Hu</i>	
UAVs Images Based Real-Time Insulator Defect Detection with Transformer Deep Learning.....	1216
<i>Xinlin Liu, Zhuyi Rao, Yunxiang Zhang, Yun Zheng</i>	
Robotic Arm Motion Planning for Obstacle Avoidance Based on the CMN-RRT * Method.....	1222
<i>Yihang Wu, Ruihua Guo, Zhaosheng Yan, Guoshun Cui, Kun Yang, Kai Zhuo</i>	
Learning Slip Detection for Agile Locomotion of Quadruped Robots	1228
<i>Peng Sun, Junjie Qiang, Letian Qian, Xin Luo</i>	
Design, Fabrication and Fine-Tuning of an Aerial-Aquatic Explosive Water-Jet Thruster with Repeatable Propulsion Capability	1234
<i>Xinyang Wang, Xuan Pei, Jiahao Wu, Xiangxing Wang, Taogang Hou</i>	
PLV-IEKF: Consistent Visual-Inertial Odometry Using Points, Lines, and Vanishing Points.....	1240
<i>Tong Hua, Tao Li, Liang Pang, Guoqing Liu, Wencheng Xuanyuan, Chang Shu, Ling Pei</i>	
Cell Culture Media Exchange Automation for Screw Cap Flasks Within Incubators	1247
<i>Lucas W. Artmann, Valentin Ameres, Tim C. Lueth</i>	
The Virtual Prototype Design and Simulation of Crab Walking Gaits Inspired Crawling and Barrier-Crossing Parallel Mechanism	1253
<i>Zheng Ma, Kai Li, Xiao-Guang Hu</i>	
Design and Implementation of Tree-Cleaning Robot Based on Wrench Observer-Auto Disturbance Rejection Control	1259
<i>Hao Xu, Haoze Zhuo, Zhong Yang, Changliang Xu, Bayang Xue, Chenxiao Zhang</i>	
osmAG: Hierarchical Semantic Topometric Area Graph Maps in the OSM Format for Mobile Robotics.....	1265
<i>Delin Feng, Chengqian Li, Yongqi Zhang, Chen Yu, Sören Schwerfeger</i>	
DOE-Based Structured Light for Robust 3D Reconstruction.....	1272
<i>Bohuai Su, Feifei Gu, Hubing Du, Zhan Song</i>	
FCUS: Traffic Rule-Aware Vehicle Trajectory Forecasting Using Continuous Unlikelihood and Signal Temporal Logic Feature	1278
<i>Sheng Wang, Ren Xin, Jie Cheng, Xiaodong Mei, Ming Liu</i>	
PIPE-VINS: A Robust, Real-Time Visual-Inertial State Estimator in Pipe Environment	1284
<i>Yiming Huang, Jianjun Yuan, Liang Du, Sheng Bao, Zhengtao Hu, Hongkai Zhang</i>	
Frequency Domain Analysis of Nonlinear Series Elastic Actuator Via Describing Function	1290
<i>Motohiro Hirao, Burak Kurkcu, Alireza Ghanbarpour, Masayoshi Tomizuka</i>	
Encountered-Type Tabletop Haptic Display for Objects On-Demand in Virtual Environments	1296
<i>Yannick Jonetzko, Oscar Ariza, Susanne Schmidt, Niklas Fiedler, Jianwei Zhang</i>	
Dynamic Inversion/Eversion of the Ankle Angle Measurement Device with Inertial Sensor and Ultrasound Echo	1303
<i>Ryuichi Hirota, Taku Itami, Jun Yoneyama, Takaaki Aoki</i>	
Estimation of Hip Joint Torque by Using Parallel Fusion Neural Dynamics Model.....	1309
<i>Lei Liu, Jiaxin Wang, Qian Xiang, Zhendong Zhao, Yong Liu, Shijie Guo</i>	

Impedance Control of a Traction Type Multifunctional Moveable Rehabilitation Robot	1315
<i>Yanheng Zhang, Zhixu Yin, Runbang Fu</i>	
MSMB-GCN: Multi-Scale Multi-Branch Fusion Graph Convolutional Networks for 3D Human Pose Estimation	1321
<i>Shanshan Ji, Qiwei Meng, Wen Wang, Zheyuan Lin, Te Li, Minhong Wan, Chunlong Zhang, Jason Gu</i>	
ANMIP: Adaptive Navigation Based on Mutual Information Perception in Uncertain Environments	1326
<i>Chenyang Cao, Xujun Xu, Xiaofei Gong, Bo Lu, Wenzheng Chi, Lining Sun</i>	
Terramechanics Modeling of a Wheel with Active Lug for Simulations.....	1333
<i>Takeki Ohira, Yang Tian, Jiaxin Liu, Shugen Ma</i>	
Design and Development of Wearable Flexible Mechanical Arm Based on Iterative Learning Control.....	1339
<i>Ze Cui, Lang Xie, Zenghao Chen, Yue Tang, Lang Kou, Peng Bao</i>	
Planning for Locomotion Mode Switching Based on Energy Optimization with a Wheel-Legged Mobile Robot.....	1347
<i>Runming Cai, Yisheng Guan, Haifei Zhu, Wangcheng Chen, Shixin Mao</i>	
Research on Horizontal Following Control of a Suspended Robot for Self-Momentum Targets.....	1353
<i>Dan Xiong, Yiyong Huang, Yanjie Yang, Hongwei Liu, Zhijie Jiang, Wei Han</i>	
Door-Opening Motion Generation Using DAE Modeling for Mobile Manipulators	1359
<i>Yusuke Kurabayashi, Kimitoshi Yamazaki</i>	
Research on Biomimetic Design Methods for Humanoid Robot Thigh	1366
<i>Daming Nie, Anhuan Xie, Lingyu Kong, Yu Zhang, Gang Zheng, Yili Fu, Jason Gu</i>	
URARAKAVII: Multi-Legged Wall Climbing Robot : Improving of the Mobility to Travel from a Horizontal Floor to a Vertical Wall	1371
<i>Y. Hiramaki, K. Ito</i>	
Review of Inference Time Prediction Approaches of DNN: Emphasis on Service Robots with Cloud-Edge-Device Architecture	1377
<i>Tian Xiang, Qiwei Meng, Ji Zhang, Beibei Zhang, Wei Song, Anhuan Xie, Jason Gu</i>	
A Fabric-Based Pneumatic Actuator for the Infant Elbow: Design and Comparative Kinematic Analysis.....	1383
<i>Ipsita Sahin, Mehrnoosh Ayazi, Caio Mucchiani, Jared Dube, Konstantinos Karydis, Elena Kokkoni</i>	
Image-Based Measurement of Phenotypic Parameters of Chinese Cabbage.....	1389
<i>Gang Wu, Yuanyuan Liu, Biao Hu</i>	
OCViTnet: Pulse Wave Learning for Cuffless Blood Pressure Estimation of Medical Service Robots.....	1395
<i>Yuhui Cen, Jingjing Luo, Hongbo Wang, Li Chen, Xing Zhu, Jingchun Luo</i>	
Optimized Gravity Identification and Payload Estimation of a Manipulator with Joint Torque Sensors	1401
<i>Shenhao Chen, Haifei Zhu, Yisheng Guan, Shixin Mao</i>	
Design and Implementation of a VTOL UAV and Its Digital Twin.....	1407
<i>Yebin Zhong, Xizheng Huang, Zexin Lin, Jiayu Chen, Zhenglong Sun, Xiaoqiang Ji</i>	

Motion Control Utilizing Surrogate Model for a Soft Actuator Driven by Airbag-Typed Cells	1413
<i>Yuchuan Yang, Manjia Su, Yisheng Guan, Wangcheng Chen</i>	
Fog-Based Distributed Camera Network System for Surveillance Applications	1419
<i>MVS Sakethram, PS Saikrishna</i>	
An Universal Dynamic Model Predictive Control Framework for Quadruped Robot Locomotion.....	1425
<i>Zehua Huang, Ran Huang</i>	
Snake-Inspired Swarm Robot Design for Distributed Underwater Search and Rescue	1431
<i>Wenbo Jia, Zijia Zhao, Wenzhuo Huang, Yangyang Li, Jie Ling, Bai Chen, Yayı Shen</i>	
Control of Soft Pneumatic Actuators with Approximated Dynamical Modeling	1437
<i>Wu-Te Yang, Burak Kürkçü, Motohiro Hirao, Lingfeng Sun, Xinghao Zhu, Zhizhou Zhang, Grace X. Gu, Masayoshi Tomizuka</i>	
Exhaustiveness Does Not Necessarily Mean Better: Selective Task Planning for Multi-Robot Systems.....	1445
<i>Xinye Xiong, Xingyao Han, Zhe Liu, Hesheng Wang</i>	
Family of Six-DOF Novel Two-Platform Parallel Robots and Development of Re-Configurable Prototypes.....	1451
<i>Takashi Harada, Hayato Yase</i>	
Stability Margin Based Gait Design on Slopes for a Novel Reconfigurable Quadruped Robot with a Foldable Trunk	1457
<i>Jian Fu, Junpeng Chen, Zhao Tang, Zhenhua Wei, Jian S. Dai</i>	
Modeling and Analysis of Pipe External Surface Grinding Force Using Cup-Shaped Wire Brush.....	1464
<i>Dongying Shao, Mingyuan Wang, Liang Du, Sheng Bao, Zhengtao Hu, Longchuan Li, Jianjun Yuan</i>	
USP-SLAM: Deep Learning Based Visual SLAM with Robust Feature Extraction Under Dynamic Environments.....	1470
<i>Ziqi Li, Wei Gao, Haoyao Chen, Shiwu Zhang</i>	
An Original Design of Robotic-Assisted Flexible Nasotracheal Intubation System	1476
<i>He Liu, Shi-Qi Liu, Xiao-Liang Xie, Ye Li, Xiao-Hu Zhou, Zhen-Qiu Feng, Guo-Tao Li, Xi-Yao Ma, Zeng-Guang Hou, Yong-Yi Yuan, Yong Cui, Yu-Hong Tian, Pu Dai</i>	
Adaptive Guidance by Multi-Agent Systems Combining Personality Imitation and Independent Learning	1482
<i>Kotaro Kobayashi, Ryo Watanabe, Hiroshi Igarashi</i>	
Deployment Method of Wireless Sensor Networks for Coal Mine Safety Monitoring Based on Multi Robot Systems	1488
<i>Hongwei Tang, Gongbo Zhou, Deen Bai, Menggang Li, Xia Zhang, Chaoquan Tang</i>	
UAV Wheat Rust Detection Based on FasterNet-YOLOv8	1494
<i>Huaiyu Liu, Yueyuan Zhang, Shuguang Liu, Mengyang Zhao, Lining Sun</i>	
Learning the Dynamics of Flapping Wing Robots Via Gaussian Process Regression During Three-Dimensional Trajectory Tracking	1500
<i>Chen Qian, Yongchun Fang, Rui Chen, Jifu Yan, Yiming Liang, Tiefeng Li</i>	

Multi-Target Approaching Control of Hyper-Redundant Manipulators Using Reinforcement Learning	1506
<i>Han Xu, Chen Xue, Quan Chen, Jun Yang, Bin Liang</i>	
3D Intra-Articular Dense Reconstruction from Arthroscopic Images	1512
<i>Yanhao Zhang, Chonghao Cheng, Raphael Falque, Liang Zhao, Shoudong Huang, Yongbo Chen</i>	
LIO-DOR: A Robust LiDAR Inertial Odometry with Real-Time Dynamic Object Removal	1519
<i>Lingjian Mao, Wei Gao, Haoyao Chen, Shiwu Zhang</i>	
A Novel Generalized EEG Channel Selection Method Using Pearson Correlation Coefficient	1526
<i>Dongxu Liu, Qichuan Ding, Maiwei Wen, Chenyu Tong</i>	
Hand Exoskeleton for Rehabilitation Using a Flexible Screw Mechanism.....	1532
<i>Yanheng Zhang, Zihui Song, Runbang Fu</i>	
Hysteresis Effect Suppression: Replacing Modeling with Linear and Nonlinear Methods Combination	1538
<i>Bingyang Hou, Ze Wang, Chuxiong Hu, Yu Zhu</i>	
Robot-Assisted After-Process Progress-Monitoring System Based on BIM and Computer Vision	1544
<i>Haiou Liao, Bangzhen Huang, Kewei Dong, Zhenzhong Jia, Jing Wu</i>	
Design and Modeling of a Lightweight Lower Limb Exoskeleton with Compliant Knee Joints	1550
<i>Shuowen Yi, Zhijun Fu, Xiao Yang, Yueru Liao, Zhao Guo</i>	
3D Residential Reconstruction from a Single Indoor Floor Plan	1556
<i>Ze Zhang, Xiaojun Wu, Yunhui Liu</i>	
Learning Stall Recovery Policies Using a Soft Actor-Critic Algorithm with Smooth Reward Functions	1562
<i>Junqiu Wang, Jianmei Tan, Peng Lin, Chenguang Xing, Bo Liu</i>	
Knee Joint Support Mechanism that Can Switch Between Four Patterns Using Compression and Tension Springs	1568
<i>Takuya Watarai, Taku Itami, Jun Yoneyama</i>	
Adaptive Impedance Control of Manipulators in Human-Robot Interaction	1574
<i>Chonghang Xu, Ran Huang</i>	
A Robot Geometric Error Identification Method Based on a Hybrid LR-QNLM Algorithm.....	1580
<i>Cheng Li, Zeyuan Yang, Sijie Yan, Yifan Yang, Xiaohu Xu, Jing Yue</i>	
A Magnetic Force Calculation of Permanent Magnet for Magnetic Surgical Instruments	1586
<i>Jingwu Li, Zhijun Sun, Zhongqing Sun, Xing Gao, Chongjing Cao, Yingtian Li</i>	
Robotic Prosthetic Hand with a Mechanism for Wrist Rotation Using the Center of Grasping Force of the Fingers.....	1592
<i>Rie Tsukishiro, Rihito Ogura, Matthew Soon, Taku Itami, Jun Yoneyama</i>	
Real-Time RGB-D Pedestrian Tracking for Mobile Robot	1598
<i>Wenhao Liu, Wanlei Li, Tao Wang, Jun He, Yunjiang Lou</i>	
The Development of a Visual Servo Simulator Based on ROS2 and MuJoCo.....	1604
<i>Yang Lu, Zongdao Li, Haoran Zhou, Liang Zhou</i>	

Multi-View Self-Supervised Object Segmentation.....	1610
<i>Wenxuan Ma, Liming Zheng, Yinghao Cai, Tao Lu, Shuo Wang</i>	
An Intelligent English Teaching System for Humanoid Applications	1618
<i>Qizhi Yang, Yisheng Guan, Weinan Chen, Wangcheng Chen</i>	
Vision-Based Defects Detection and Interactive Impedance Control in Robotic Automated Layup Tasks.....	1624
<i>Haochen Zheng, Xueqian Zhai, Shichao Gu, Zhaoyang Liao, Jia Pan, Zhihao Xu, Xuefeng Zhou, Shixin Mao, Hongmin Wu</i>	
Analysis of Normal Force of Wheel-Sand Interaction for Planetary Rovers with Active Suspension	1630
<i>Zhengyin Wang, Huaiyang Yang, Liang Ding, Qingning Lan, Haibo Gao, Zdravko Terze, Zongquan Deng</i>	
Control Design Based on EKF Via Pigeon-Inspired Optimization with Pattern Search for UAV Close Formation Flight.....	1636
<i>Guangsong Yuan, Haibin Duan, Delin Luo</i>	
A Task Management and Navigation Framework for Autonomous Subterranean Exploration and Sampling.....	1642
<i>Qiang Li, Yuehua Li, Yuan Yu, Zhicheng Yu</i>	
Digital Twin System for Robotic Tool-Replacing in Tunnel Boring Machine	1648
<i>Junxin Liu, Jianjun Yuan, Liang Du, Sheng Bao</i>	
Memory Enabled Segmentation of Terrain for Traversability Based Reactive Navigation.....	1654
<i>Mario A. V. Saucedo, Akash Patel, Christoforos Kanellakis, George Nikolakopoulos</i>	
Increasing Exploration in Sampling-Based Motion Planning for Manipulator	1660
<i>Yi Zhang, Hongguang Wang</i>	
An Efficient and Robust Tightly Coupled Framework for Lidar-IMU Localization and Mapping.....	1666
<i>Yanwu Zhai, Yili Fu, Xu Li</i>	
Development of an Evaluation Simulator for Gastrointestinal Stents by Applying a Peristaltic Pump: Prototype Fabrication of Evaluation Simulators and Characteristic Tests	1672
<i>Shogo Uzawa, Takeru Hashiguchi, Manabu Okui, Taro Nakamura</i>	
Harnessing Vision Transformers for LiDAR Point Cloud Segmentation	1678
<i>Burak Alp Inan, Duarte Rondao, Nabil Aouf</i>	
A Dynamic-Static Weighted Network with Diverse-Token Fusion Attention for Rhesis Margin Recognition in Microscopic Surgery	1684
<i>Zhen Li, Wen-Qian Yue, Gui-Bin Bian, Shuai Zhang, Wei-Peng Liu, Shuo Li</i>	
Modeling and Compensation of Self-Twisting Angle for Shape Sensing in Flexible Bronchoscopy.....	1690
<i>Xinran Liu, Hao Chen, Yuanrui Huang, Jian Chen, Hongbin Liu</i>	
Design of an Automated Robotic System for Object Tracking and Targeted Lighting.....	1696
<i>Robin Schregle, Felix Pancheri, Yilun Sun, Tim C. Lueth</i>	
DynGraspVS: Servoing Aided Grasping for Dynamic Environments.....	1702
<i>Gunjan Gupta, Vedansh Mittal, K. Madhava Krishna</i>	

Elastic Force Feedback CPG-Based Gait Control for a Quadruped Robot with a Bioinspired Leg Mechanism	1710
<i>Saya Amioka, Ryuki Sato, Aiguo Ming</i>	
Multi Agent Coordination Strategy for Collaborative Exploration of GPS-Denied Environments.....	1716
<i>Akash Patel, Christoforos Kanellakis, George Nikolakopoulos</i>	
Lightweight Map Storage and Retrieval Method for Autonomous Navigation of UAVs in Large-Scale Cylindrical Spaces	1722
<i>Mengfan Xu, Shuai Su, Taogang Hou, Xuan Pei, Junxi Chen</i>	
Bifurcation Variation of a Novel Line-Symmetric Double-Centered 6R Metamorphic Mechanism Based on Ellipses.....	1728
<i>Song Lin, Yifeng Song, Hongguang Wang, Bingbing Yuan, Jiansheng Dai, Fengren Jing</i>	
A Sample Repetitive Manipulation Mechanism (SRMM) for Lunar Regolith In-Situ Analysis: Design and Validation.....	1734
<i>Yi Liu, Junyue Tang, Yafang Liu, Gongbo Ma, Feng Sun, Ye Li, Shengyuan Jiang</i>	
Design and Experimental Validation of Sealing Assembly for Lunar Regolith Volatile Extraction Heating Furnace	1740
<i>Hongan Zhang, Junyue Tang, Yinchen Wang, Zixiao Lu, Bo Wang, Miaoyan Cao, Shengyuan Jiang</i>	
D-MRFTE: A Decentralized Relay-Based Approach for Multi-Robot Unknown Area Exploration.....	1746
<i>Ankit Soni, Chirag Dasannacharya, Avinash Gautam, Virendra Singh Shekhawat, Sudeept Mohan</i>	
Deep Reinforcement Learning for a Humanoid Robot Basketball Player.....	1753
<i>Shuaiqi Zhang, Guodong Zhao, Peng Lin, Mingshuo Liu, Jianhua Dong, Haoyu Zhang</i>	
Comparison of Compliance Error Compensation Approaches for Robotic Manipulators with Double Encoders	1759
<i>A. Klimchik</i>	
A Novel Mobile 3D Printing Robot Incorporating a Planar Five-Bar Mechanism.....	1765
<i>Haoyang Liu, Yang Zhang, Ruitong Lin, Dongjie Li, Yipeng Li</i>	
Shape Analysis and Control of a Continuum Objects.....	1771
<i>Yuqiao Dai, Peng Li, Shilin Zhang, Yunhui Liu</i>	
MultiRoboLearn: An Open-Source Framework for Multi-Robot Deep Reinforcement Learning	1777
<i>Junfeng Chen, Fugui Deng, Yuan Gao, Junjie Hu, Xiyue Guo, Guanqi Liang, Tin Lun Lam</i>	
Multi-Objective Geometric Optimization of a Multi-Link Robot Manipulator Considering Dynamics Performance	1783
<i>Zixin Gao, Liang Du, Xiaomeng Hu, Zhengtao Hu, Sheng Bao, Kensuke Harada, Jianjun Yuan</i>	
A Fine Sensing Method of Lower Limb Movement Electromyography Based on Sparrow Search Algorithm Optimised Support Vector Machine	1789
<i>Yonglin Han, Qing Tao</i>	
Preliminary Study of a Spring-Based Miniature Extensible Manipulator for Bronchoscopic Steering.....	1795
<i>Jie Wang, Chengquan Hu, Yihua Sun, Longfei Ma, Guochen Ning, Hongen Liao</i>	

Path Planning for Robotic Arm Based on Reinforcement Learning Under the Train.....	1801
<i>Guanhao Xie, Duo Zhao, Qichao Tang, Muhua Zhang, Wenjie Zhao, Yewen Wang</i>	
Prediction of Loss-Of-Balance of the Human Based on Plantar Pressure by Using the SA-RF Algorithm	1809
<i>Liangjie Tu, Fugang Yi, Bingfei Fan, Mingyu Du, Shibo Cai</i>	
Towards Model-Based Contact Force Estimation for Flexible Catheter	1814
<i>Xiaoyu Wu, Junnan Xue, Shuang Song, Jiaole Wang</i>	
A Multimodal Pipeline for Grasping Fabrics from Flat Surfaces with Tactile Slip and Fall Detection.....	1821
<i>Niklas Fiedler, Yannick Jonetzko, Jianwei Zhang</i>	
GMC-Pos: Graph-Based Multi-Robot Coverage Positioning Method	1827
<i>Khattiya Pongsirijinda, Zhiqiang Cao, Muhammad Shalihan, Benny Kai Kiat Ng, Billy Pik Lik Lau, Chau Yuen, U-Xuan Tan</i>	
Terrain Classification Using Inside-Wheel Cameras Based on Wheel-Terrain Interaction Characteristics	1834
<i>Longteng Hu, Feng Xue, Chen Yao, Yunzhou Li, Jin Wei, Peichen Wang, Zheng Zhu, Zhenzhong Jia</i>	
A Hierarchical Reinforcement Learning Approach for Adaptive Quadruped Locomotion of a Rat Robot	1840
<i>Zitao Zhang, Yuhong Huang, Zijian Zhao, Zhenshan Bing, Alois Knoll, Kai Huang</i>	
A Real-Time Person-Following Framework Based on LiDAR-Camera Fusion.....	1846
<i>Xu Wang, Xijun Zhao, Huachao Yu, Xingxing Guang, Yuqi Sun, Xing Cui, Bo Su</i>	
Physiological Effects of a Back-Support Exoskeleton Control to Assist Carrying Activities	1853
<i>Maria Lazzaroni, Christian Di Natale, Darwin G. Caldwell, Jesús Ortiz</i>	
Twitching Control for Pneumatic Artificial Muscle Actuators	1859
<i>Piotr A. Bogdan, Oliver Smith, Frederico B. Klein, Mario Gianni</i>	
Force Perception -Based Active Breath-Following Control of a Puncture Ablation Surgery Robot End Effector	1865
<i>Tao Yong, Dongming Han, Tianmiao Wang, Yufan Zhang, Lian Duan, Yiru Wang</i>	
Towards Robust UAV Tracking in GNSS-Denied Environments: A Multi-LiDAR Multi-UAV Dataset.....	1872
<i>Iacopo Catalano, Xianjia Yu, Jorge Peña Queralta</i>	
A Model of Ant Grasping Behaviour.....	1879
<i>Persie Rolley-Parnell, Barbara Webb</i>	
HaptiCharger: Robotic Charging of Electric Vehicles Based on Human Haptic Patterns	1885
<i>Oussama Alyounes, Miguel Altamirano Cabrera, Dzmitry Tsetserukou</i>	
Concept and First Realization of Robotically Applied Emergency Care Via Task-Specific End Effectors	1891
<i>Valentin Ameres, Lucas Artmann, Tim C. Lueth</i>	
Development of a Vibration-Driven Capsule Robot with Protruding Magnetic Bristles with Enhanced Adaptability in Wet and Dry Environments	1897
<i>Yujie Zhang, Tanyong Wei, Shujing He, Yuying Hong, Chengzhi Hu</i>	

A Soft Hydraulic Endorectal Actuator for Prostate Radiotherapy	1903
<i>Aryan Niknam Maleki, Alexander Thompson, Mark S. Runciman, Julia Murray, George P. Mylonas</i>	
A Flexible Towed Aerial Robot System for Stable X-Ray Inspection of Power Lines.....	1909
<i>Zhaoying Wang, Xu Li, Wenkang Hu</i>	
Robust Multi-Agent Coverage Path Planning for Unmanned Airial Vehicles (UAVs) in Complex 3D Environments with Deep Reinforcement Learning	1915
<i>Julian Bialas, Mario Doeller, Robert Kathrein</i>	
Recognition of Human Relationships Using Interactions and Gazes Through Video Analysis in Surveillance Footage	1921
<i>Matus Tanonwong, Naoya Chiba, Koichi Hashimoto</i>	
Design Advantages of Four-Bar Linkage Planar Robotic Arm for Upper-Extremity Rehabilitation	1928
<i>Khemwutta Pornpipatsakul, Wasutha Chuengwutigool, Ronnapee Chaichaowarat</i>	
Navigating Mobile Manipulator Robot for Restaurant Application Using Open-Source Software.....	1934
<i>Sattrapiyapunsutti, Eisen Lance De Guzman, Ronnapee Chaichaowarat</i>	
Real-Time Solution of Multi-Constrained Quadratic Programming Problem for Redundant Manipulator Based on Recurrent Neural Network	1940
<i>Longxin Zhong, Xiaolong Zhang, Xueqian Zhai, Yuming Li, Zhihao Xu, Jia Pan, Xuefeng Zhou</i>	
Inertia Estimation of Quadruped Robot Under Load and Its Walking Control Strategy in Urban Complex Terrain	1946
<i>Qiang Fu, Muxuan Han, Yunjiang Lou, Ke Li, Zhiyuan Yu</i>	
Adaptive Polynomial Predictive Filter: Solving Inconsistent and Interrupted Sensor Data Challenges	1953
<i>Dileep Sivaraman, Branesh M. Pillai, Songpol Ongwattanakul, Jackrit Suthakorn</i>	
Walking Control of Telescopic Leg Bipedal Robot Based on Angular Momentum Predictive Foothold	1959
<i>Wencong Gan, Jian Liu, Jun Tang, Wenqiong Xu, Yudi Zhu, Qingdu Li</i>	
Autonomous Modular Harvesting System for Vertical Aeroponic Farming.....	1965
<i>Papinwich Asnapetch, Chanet Ruangrit, Nabhatara Tongsri, Napat Chuenyoo, Peeradon Poonthongpan, Poom Konghuayrob, Supun Dissanayaka, Sarucha Yanyong</i>	
SWhegPro3: A Three-Impeller Wheel-Leg Transformable Robot with Variable Robust Adaptability to Stair Dimensions	1972
<i>Haoran Wang, Siyuan Wang, Cunxi Dai, Zhenzhong Jia</i>	
Improvement of Lower Back Support Exoskeleton: Muscle Suit "Every"	1978
<i>Ryota Sato, Takuya Hashimoto, Kenta Matsumoto, Hiroshi Kobayashi</i>	
A Comprehensive SLAM Dataset for Indoor Exhibition Environments: Data Collection, Processing, and Comparative Evaluation	1984
<i>Songyu Yuan, Jing Zhang, Chen Pan, Chunlong Zhang, Minhong Wan, Tao Zheng, Jason Gu</i>	
Multi-Map Collaborative Exploration Toward Large-Scale 3D Mapping Using UAV	1990
<i>Ziqiang Li, Shumei Yu, Rongchuan Sun, Lining Sun</i>	

Traversability Analysis for Unmanned Ground Vehicles Based on Multi-Modal Information Fusion.....	1996
<i>Mingxing Wen, Jiajie Guo, Yichen Zhou, Jun Zhang, Yufeng Yue, Danwei Wang</i>	
IGFNet: Illumination-Guided Fusion Network for Semantic Scene Understanding Using RGB-Thermal Images	2002
<i>Haotian Li, Yuxiang Sun</i>	
Non-Rigid 3D Point Set Registration with Reliable Hybrid Mixture Model.....	2008
<i>Haocheng Huang, Zhengyan Zhang, Zhe Min, Max Q.-H. Meng, Shuang Song, Jiaole Wang</i>	
Feedforward Enhanced Reinforcement Learning Control for a Small Humanoid Robot KHR-3HV	2014
<i>Yucheng Xin, Linqi Ye, Xueqian Wang</i>	
Autonomous and Safety-Critical Stair Climbing Via Nonlinear Model Predictive Control for Quadrupedal Robots	2021
<i>Chengzhuo Li, Xiafu Peng, Weiyao Lan, Xiao Yu</i>	
Autonomous Rescue Hexapod Robot with AI Human Detection and Tracking.....	2027
<i>Chissanupong Saengsint, Kidtipod Juntacheevakul, Kirawut Chalermitpaisan, Napak Suthapintu, Pavares Tomaneenilrat, Navavee Jungwongsuk, Sarucha Yanyong, Poom Konghuayrob, Supun Dissanyaka</i>	
Analysis of Stability and Energy Efficiency of Legged Running Based on the Two-Segmented Leg Model	2033
<i>Hao Hu, Letian Qian, Zhanhao Xu, Xin Luo</i>	
Robust Robot Control for Human-Walking Assistance from Physical Human-Robot Interaction	2039
<i>Lipeng Chen, Jingchen Li, Xiong Li, Yu Zheng</i>	
Optimal Five-Bar Legged Design for Energy-Efficient Bipedal Robot	2047
<i>Kan Keawhanam, Rada Chuengpichanwanich, Chanathip Khlowutthiwat, Ronnapree Chaichaowarat</i>	
A Knowledge-Based Full-Time Non-Homotopy Path Optimization Method Through Online Environmental Learning	2053
<i>Xiaofei Gong, Chenyang Cao, Xujun Xu, Wenzheng Chi, Lining Sun</i>	
Decomposing Trajectory Forecasting into Route and Motion: Enhancing End-To-End Autonomous Driving with Route Map Inputs.....	2060
<i>Keishi Ishihara</i>	
Bio-Inspired Blimps and Multiple-Agent Source Localisation	2067
<i>Michelle Rossouw, Sridhar Ravi, Matt Garratt</i>	
Two-Finger Gripper with Variable Stiffness of Finger Pad for Hardware Filtering in Dynamic Touch	2073
<i>Kenjiro Minamikawa, Kango Yanagida, Yotaro Morizumi, Takumi Kawasetsu, Koh Hosoda</i>	
Estimation of Deformation for Self-Balancing Lower Limb Exoskeleton Only Using Force/Torque Sensors	2079
<i>Ziqiang Chen, Ming Yang, Feng Li, Wentao Li, Jinke Li, Dingkui Tian, Jianquan Sun, Yong He, Xinyu Wu</i>	
Social Robot Navigation and Comfortable Following: A Novel Knowledge-Based Robot-Pedestrian Interaction Model with Self Learning Strategy	2085
<i>Xujun Xu, Xiaofei Gong, Chenyang Cao, Qingchuan Xu, Chengfeng Sun, Wenzheng Chi, Lining Sun</i>	

A Simulated Testing Platform of Sailing Robots: Remote Access with Hololens2	2092
<i>Na Zhang, Shuyi Lin, Qinbo Sun, Weimin Qi, Huihuan Qian</i>	
Enhanced Locomotion of Protein-Based Microrobots Via Magnetic Assemblies	2098
<i>Xiangchao Liu, Zhongyi Song, Yuan Liu, Jing Huang, Haifeng Xu</i>	
Barrier Coverage in Camera Sensor Networks in the Presence of Occluding Objects.....	2104
<i>Amit Kumar, Debasish Ghose</i>	
In-Rack Test Tube Pose Estimation Using RGB-D Data.....	2110
<i>Hao Chen, Weiwei Wan, Masaki Matsushita, Takeyuki Kotaka, Kensuke Harada</i>	
Basic Design of Two-Layer Balloon Actuator for Assisting Colonoscope Insertion.....	2116
<i>Akinari Yamamoto, Shuichi Wakimoto, Keita Harada, Daisuke Yamaguchi, Takefumi Kanda</i>	
Fractional Kelvin-Voigt Based Viscoelastic Control for self-Balancing Exoskeleton.....	2122
<i>Wentao Li, Feng Li, Ming Yang, Jinke Li, Ming Li, Yuanpei Zhu, Meng Yin, Dingkui Tian, Xinyu Wu</i>	
VGRISys: A Vision-Guided Robotic Intelligent System for Autonomous Instrument Calibration	2128
<i>Zhenqi Li, Hewei Wang, Yijie Li, Soumyabrata Dev, Guoyu Zuo</i>	
Cost-Effective Electronic Framework for Lower-Limb Exoskeletons	2134
<i>James Knea, Umer Huzaifa</i>	
Modelling and Compensation for Transmission Error of Timing Belt in Legged Robots	2141
<i>Jingcheng Jiang, Yifang Zhang, Nikos G. Tsagarakis</i>	
DAANet: Dual Attention Aggregating Network for Salient Object Detection.....	2147
<i>Yijie Li, Hewei Wang, Zhenqi Li, Shaofan Wang, Soumyabrata Dev, Guoyu Zuo</i>	
Terrain-Guided Symmetric Locomotion Generation for Quadrupedal Robots Via Reinforcement Learning	2154
<i>Xinyi Li, Wei Gao, Xiangpeng Li, Shiwu Zhang</i>	
Design and Implementation of a Novel Adaptive Multihull Sailboat with Liftable Side Hulls	2160
<i>Xinyuan Zhu, Cheng Liang, Huihuan Qian</i>	
Heuristic Online Path Planning for Mobile Air Purification and Disinfection Robot in Regulating Indoor Air Quality	2166
<i>Qingnan Zhong, Kai Chen, Jianghua Duan, Jun Ma</i>	
Design and Development of ExoGlove for Obtaining Human Hand Data.....	2172
<i>Prathamesh Sathe, Alexander Schmitz, Satoshi Funabashi, Tito Pradhono Tomo, Sophon Somlor, Sugano Shigeki</i>	
A Simulation and Visualization Platform for Sailing Robots with Application to Marine Area Scanning	2179
<i>Shuyi Lin, Na Zhang, Qinbo Sun, Weimin Qi, Huihuan Qian</i>	
Visual Servo Control for Ball-On-Plate Balancing: Effect of PID Controller Gain on Tracking Performance.....	2185
<i>Sarin Kitchatr, Aphiphun Sirimangkalalo, Ronnapee Chaichaowarat</i>	
Simplified Modeling of Hybrid Soft Robots with Constant Stiffness Assumption	2191
<i>Umer Huzaifa, Dimuthu D. K. Arachchige, Muhammad Aneeq Uz Zaman, Usman Syed</i>	

Inverse Reinforcement Learning with Attention-Based Feature Extraction from Video Demonstrations.....	2197
<i>Weixin Zhang, Tao Lu, Yinghao Cai, Shuo Wang</i>	
Real-Time Collision-Free Motion Planning and Control for Mobile Manipulation with Quadrupeds.....	2203
<i>Zhefeng Cao, Hua Chen, Sen Li, Wei Zhang</i>	
A Smart Interactive Camera Robot Based on Large Language Models	2211
<i>Zeyu Bao, Guo-Niu Zhu, Wenchao Ding, Yuxiang Guan, Weibang Bai, Zhongxue Gan</i>	
Decoupled Control of Bipedal Locomotion Based on HZD and H-LIP.....	2217
<i>Yinong Ye, Yongming Yue, Wei Gao, Shiwu Zhang</i>	
Autopilot for Hawk-Like Robot: Modeling and Trajectory Tracking Control of an Underactuated Ornithopter	2223
<i>Jifu Yan, Yongchun Fang, Chen Qian, Fan Jia, Yibo Yu</i>	
Development and Basic Characteristics of a Peristaltic Flexible Pump Based on the Intestinal Transport Function	2229
<i>M. Kawano, S. Uzawa, C. Yamazaki, T. Nakamura</i>	
A Rapid Calibration Method of Underwater Structured Light 3D Reconstruction System for Hull Bottom Cleaning and Inspection	2235
<i>Zhiqing Li, Minxuan Yu, Qinghan Hu, Chao Fan</i>	
Proposal of a Moving Speed Enhancing Method for Peristaltic Motion Type In-Pipe Inspection Robot with Linear Antagonistic Mechanism Using Endoskeletal Type Artificial Muscles.....	2242
<i>R. Okuma, Y. Naruse, F. Ito, T. Nakamura</i>	
Automatic System for Sequential Reconstruction from Image Sequences Acquired from a Camera by SfM-MVS.....	2248
<i>Taku Matsumoto, Toshihide Hanari, Kuniaki Kawabata, Hiroshi Yashiro, Keita Nakamura</i>	
CTSTC: An Energy-Efficient Coverage Path Planning Algorithm for Unmanned Surface Vehicles	2255
<i>Xiaowei Li, Junhan Huang, Yangmin Xie, Dong Qu, Yuxuan Zhong</i>	
Robotic Grasp Detection Toward Unknown Objects Using 3D Edge Detection and Gaussian Mixture Model for Clustering Candidates.....	2263
<i>Haruki Shimotori, Ping Jiang, Junichiro Ooga, Atsushi Sugahara, Shun Ito, Atsuya Koike, Ryuichi Ueda</i>	
Path Following Control of Snake Robots Based on a Physics-Data Hybrid Model	2269
<i>Jingyi Zhang, Chao Ren, Shugen Ma</i>	
A VUI Foundation and Performance Validation for Voice-To-Motion Control of Snake-Like Robots	2275
<i>Sean Casement, Yantao Shen, Mengjun Zhang</i>	
Design and Analysis of Extensible Cable-Driven Continuum Robot with Variable Stiffness	2281
<i>Ibrahim A. Seleem, Mohamed A. Naeem, Hiroyuki Ishii</i>	
Rotational Regrasping for a Stick-Type Object Using Inertial Force Based on High-Speed Swing-Up Motion	2289
<i>Taku Senoo, Atsushi Konno, Hayato Otsubo, Idaku Ishii</i>	
Design and Investigation into the Beam Structures for Improving Cross-Beam Multi-Axis Force Sensing Performance	2295
<i>Cong Peng, Peng Li, Yantao Shen</i>	

6D Grasp Pose Detection in Cluttered Environment from a Single-View.....	2301
<i>Enbo Li, Yili Fu, Haibo Feng</i>	
The Enhanced Network Swin-T by CNN on Flow Pattern Recognition for Two-Phase Image	
Dataset with Low Similarity.....	2307
<i>Jinsong Zhang, Deling Wang, Huadan Hao, Liangwen Yan</i>	
Regressor-Based Model Adaptation for Shaping Deformable Linear Objects with Force Control.....	2313
<i>Hanzhong Zhong, Ziqi Xu, Gan Ma, Mingrui Yu, Xiang Li</i>	
Bilateral Teleoperation Control Using Unified Interactive Model for Manipulation in Contact	
Environment.....	2320
<i>Xiao Yang, Fanghao Huang, Jason Gu, Zheng Chen</i>	
Design and Modeling of a Novel Mobile Wall-Climbing Robot with a Long-Span Foldable	
Mechanical Arm	2326
<i>Yixin Zhang, Haoning Wang, Changwei Huang, Xingfei Zhou, Wei Hao, Siyuan Jin, Shaoping Wang</i>	
Robust Adaptive Filter for Time-Varying Parameters Estimation in Integrated Navigation of Fixed-Wing Aerial Robot.....	2332
<i>Zhaoyu Zhang, Haibin Duan</i>	
Design and Validation of a Novel Tracheal Intubation Robot	2338
<i>Jingjing Luo, Yu Tian, Hongbo Wang, Jiawei Wang, Luyan Zhou, Jianhao Tang, Xing Zhu, Lili Feng, Yuan Han, Wenxian Li</i>	
Path Planning of AUV Based on Improved A* Algorithm with Optimal Energy Consumption	2343
<i>Guozheng Li, Qiyu Wang, Qinghan Hu, Zhiqing Li</i>	
Individualization of Assistance Strategy for Hip Extension Assistance Based on Emotion-In-The-Loop	2349
<i>Zhuo Wang, Fangliang Yang, Lingxing Chen, Tingwei He, Chunjie Chen, Xinyu Wu</i>	
A General Huber Function Based Compliant Control Method for the Cooperative Puncture Surgery	2356
<i>Zheng Liu, Qianlin Dai, Shuang Wang, Le Xie</i>	

Author Index