2024 IEEE 33rd International Symposium on Industrial Electronics (ISIE 2024)

Ulsan, South Korea
18-21 June 2024

Pages 1-446

IEEE Catalog Number: CFP24ISI-POD
ISBN: 979-8-3503-9409-2

Copyright © 2024 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:	CFP24ISI-POD
ISBN (Print-On-Demand):	979-8-3503-9409-2
ISBN (Online):	979-8-3503-9408-5
ISSN:	2163-5137

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

Bag-Of-Future: Time Series Forecasting by Continuous Function Candidates 1
Hendrik Klopries, Vignesh Chandramouli, Andreas Schwung

MAIOS: A Multi Accountability IoT Oriented Switch 7
Maximiano Eduardo Pereira, Pedro Frosi Rosa

Visual Servoing of a 3 DOF Hover Quadcopter Using 2D Markers 13
Fethi Ouerdane, Muhammad Faizan Mysorewala

A Highly-Squinted TOPSAR Image Formation and Azimuth Resolution Enhancement Using Embedded Focusing Based on Hybrid-Domain Algorithm 19
Iman Heidarpour Shahrezaei, Hyun-Cheol Kim

Distributed Generator with Virtual Grid-Based Remote Voltage Unbalance Compensation and Maximum Current Limiting 25
Jose Ignacio Iniguez, Jaume Miret, Antonio Camaeho, Miguel Castilla

Enhanced Agoraphilic Algorithm for Uneven Terrain-Adaptive Navigation 31
W.M.D.R. Gunathilaka, Gayan Kahandawa, M. Yousef Ibrahim, H. S. Hewawasam, Linh Nguyen

Free Space Identification for Agoraphilic Algorithm in Uneven Terrain Environment 37
W.M.D.R. Gunathilaka, Gayan Kahandawa, M. Yousef Ibrahim, H. S. Hewawasam, Linh Nguyen

Improved Sliding Mode Control Strategy Based on Photovoltaic-Energy Storage Virtual Synchronous Generator System 43
Shuhao Li, Wensheng Luo, Ruifang Zhang, Jose I. Leon, Abraham Marquez, Leopoldo G. Franquelo

Microgrid Secondary Control Design Based on Second-Order Sliding Mode Algorithm 49
Tingyu Shi, Wensheng Luo, Ruifang Zhang, Jose I. Leon, Abraham Marquez, Leopoldo G. Franquelo

Classification of Weed and Corn Seedling Using Hybrid MobileNetV2 and Support Vector Machine 55
Faisal Dharma Adhinata, Wahyono, Raden Sumiharto

Networked Control of a Parrot Mambo Drone 61
Alexandru Codrean, Attila Kovács, Octavian Stefan, Zsófia Lendek

A Novel Dataset for Baby Broccoli Identification by Using YOLOv8 Model 68
Rizan Mohamed, Gayan Kahandawa Appuhamillage, Joarder Kamruzzaman, Linh Nguyen

Impact of High Voltage Waveform on Partial Discharge Inception in Electrical Machines 73
Andreas Rauscher, Siddhanth Kalamkar, Christian Endisch

Safe Object Detection in AMRs - A Survey 79
Yannick Wunderle, Eike Lyczkowski, Sören Hohmann

Multi-Label Image Classification for Ocular Disease Diagnosis Using K-Fold Cross-Validation on the ODIR-5K Dataset 87
Andrè I. Herrera-Chavez, Eder A. Rodríguez-Martínez, Wendy Flores-Fuentes, Julio C. Rodríguez-Quiñonez, Juan C. García-Gallegos, Oscar H. Montiel-Ross, Féelix F. Gonzàalez-Navarro, Oleg Sergiyenko

A Low-Code Development Platform for Industrialized Insect-Based Bioconversion Systems 93
Cheng Pang, Jinxian Liang, Guangtao Yu, Jibin Zhang, Hiroaki Nishi, Kevin I-Kai Wang, Zeyuan Li, Wenbin Dai, Valeriy Vyatkin

Secondary Fault Identification Method Based on the Extremely Low Frequency Current Measurement 99
Shiwu Yang, Qing Chen, Hongbin Li, Yang Jiao, Ruoyan Tian, Yuxiang He

Incipient Bearing Fault Signature Identification Via Vibration Envelope Analysis and MUSIC 106
Jose E. Ruiz-Sarrio, Jose A. Antonino-Daviu, Israel Zamudio-Ramirez, Roque A. Osornio-Rios

Bispectral Wavelet Time-Frequency Analysis for the Detection of Field Winding Faults in Synchronous Motors 112
Miguel E. Iglesias Martínez, Jose A. Antonino-Daviu, Larisa Dunai, Carlos A. Platero, J. Alberto Conejero, Pedro Fernandez De Cordoba

Identification and Compensation of Converter Non-Linearities of a Multiphase Converter 118
Omer Ikram Ul Haq, R. S. Kanchan, Cicero Postiglione, Sjoerd G. Bosga, Luca Peretti

Automatic Mechanical Fault Diagnosis in Induction Motors Through Thermography and Gradient Boosting 124
Jonathan Cureño Osornio, Geovanni Díaz Saldaña, Israel Zamudio-Ramirez, Roque A. Osornio-Rios, Jose A. Antonino-Daviu

Securing Ventilators: Integrating Hardware Security Modules with SoftHSM and Cryptographic Algorithms 130
Joshua Tito Amael, Jazi Eko Istiyanto, Zaidan Hakim, Rifda Hakima Sari, Aufaclav Zatu Kusuma Frisky, Oskar Natan

APNet: Adaptive Patch-Based Network for Microaneurysm Detection in Fundus Images 136
Xinpeng Zhang, Congcong Wang, Yilin Han, Shengyong Chen

Novel Motion Control System for Industrial Robot Arms Enhanced by Innovative Method and PLC Integration 142
Xinyu Sun, Chong Peng

Fault Detection and Bipartite Time-Varying Formation Control for Fuzzy Multi-Agent Systems Under Switching Topology: Theory and Applications 148
Siyang Zhao, Jinyong Yu, Michael Basin

Autonomous Take-Off Control System with Stall Prevention for Fixed-Wing UAVs Utilizing LQR Method 154
Ariesta Martiningtyas Handayani, Andi Dharmawan, Jazi Eko Istiyanto, M. Ridho Fuadin, Triyogatama Wahyu Widodo, Danang Lelono

Vision-Based Dexterous Motion Planning by Dynamic Movement Primitives with Human Hand Demonstration 160
Nuo Chen, Ya-Jun Pan

A Feature Extraction and Analysis Method for Battery Health Monitoring 166
Jilun Tian, Jiusi Zhang, Hao Luo, Congsheng Huang, Mo-Yuen Chow, Yuchen Jiang, Shen Yin

Analysis of Grinding Motion Using Force/Tactile Sensation 172
Tomoya Kitamura, Takumi Hachimine, Takamitsu Matsubara, Yuki Saito, Hiroshi Asai, Kouhei Ohnishi

Adopting OPC UA for Efficient and Secure Firmware Transmission in Industry 4.0 Scenarios 178
Francesco Biondani, Dong Seon Cheng, Franco Fummi

Liberating Humanity from Heavy Labor: Dual-Arm Coordination and Teleoperation Control for an Assistive Robot 184
Lei Wang, Ruohan Wang, Honghao Lyu, Na Dong, Zhongwei Zhang, Yungang Hao, Haihui Yuan, Haiteng Wu, Geng Yang

Communication Overhead Reduction for Actively Managed Energy Communities Leveraging IEC 61850-7-420:2021 Data Model Payload Traffic 190
Paul Bauer, Jonathan Kapfinger, Thomas Reisinger, Stefan Wilker, Gerald Franzl, Thilo Sauter

Efficient HW/SW Co-Design of FPGA Accelerator to Detect Anomaly Attacks in Smart Grids 196
Hongsen Liu, Lin Wang, Guangyi Liu, Yong Sun, Shizhong Li, Wenchao Meng

Improved BP Neural Network Utilizing Bayesian Optimization Algorithm for Iron-Making Process Control 202
Shaoran Wang, Jinhua She, Seiichi Kawata, Feng Wang, Juan Zhao, Qifu Chen, Zhenhong Liao

Indoor Automatic Dimming System Based on Particle Swarm Optimization 208
Yu Fang Hsueh, Chen Xi Kuan, Kun Che Ho, Yi Hua Liu, Yu Shan Cheng, Ching Ju Kung

Event-Triggered and Self-Triggered Control for Discrete Polytopic Linear Parameter-Varying Systems with Exogenous Inputs 214
Dinsha Vinod, Jing Zhou

Empirical Investigation and Feed-Forward Control of Wire Tension in Needle Winding Processes 220
Markus Kohler, Christian Herrera, Martin Gerngroß, Ralph Kennel, Christian Endisch

ROS2 Implementation of Object Detection and Distance Estimation Using Camera and 2D LiDAR Fusion in Autonomous Vehicle 228
Gyu Hyeon Hwang, Si Woo Lee, JaeWook Jeon

A Comparative Evaluation of the Performance of a Novel H9-VSI for Reduced Common Mode Currents 233
Karthickraja Jegatheesan, Jose Titus

An Adaptive Integral Sliding Mode Control for Disturbed Servo Motor Systems 239
Kamran Ali, Kamal Rsetam, Zhenwei Cao, Zhihong Man

Model-Aided Learning Algorithm for PV Power Data Generation 245
Hao Yang, Xiurong Feng, Xiang Wu, Chouwei Ni, Fanghong Guo

Implementation of SOME/IP-CAN Gateway in View of Automotive Service Discovery 250
Sung Bhin Oh, Young Soo Do, Se Jeong Lim, Hyeok Jun Choi, Sung Keun Cha, Jae Wook Jeon

Enhancing Traceability in Flexible Production System: A Blockchain-Powered Approach in IEC 61499 Multi-Agent Control System 255
Midhun Xavier, Sandeep Patil, Valeriy Vyatkin

Software Evolution of I4.0 Digital Twins with Semantic Patching 261
Nico Braunisch, Sebastian Heppner, Igor Garmaev, Marko Ristin, Torben Miny, Tobias Kleinert, Hans Wernher Van De Venn, Martin Wollschlaeger

Delay-Dependent Stability Analysis of a Flywheel Storage Energy System for Frequency Support 267
Bingyu Wang, Fang Fang, Yubing Liu, Le Wei

EMT Simulation Based Parametric Tuning of Damping Support in MMC- HVDC Networks 273
Monika Sharma, Peter Palensky, Jose Luis Rueda Torres

Allocating Auto Offset System in Periodic Task for Load Balancing in Multi-Core ECU 279
Sung Keun Cha, Se Jeong Lim, Young Soo Do, Jae Wook Jeon

Control Set Reduction for PMSM Predictive Controller Via Assisted Learning Algorithm 283
Michal Kozubik, Pavel Vaclavek

A Lightweight Attention Network for Camouflaged Object Fixation Prediction 289
Qingbo Wu, Guanxing Wu, Shengyong Chen

Approach to Improving Asynchronous Traffic Shaping Performance Using a Combination of Shaper 295
Young Soo Do, Sung Bhin Oh, Se Jeong Lim, Jae Wook Jeon

A Core-Combine Processing Method for Diagnostic in Multi-Core ECU 301
Se Jeong Lim, Sung Bhin Oh, Young Soo Do, Jae Wook Jeon

Variable Frequency Control Strategy for Transformers Surge Current Reduction in DAB Converters 306
Manel Vilella, Jordi Zaragoza, Nestor Berbel, Gabriel Capella, Manuel Lamich

Series-Parallel Connection of GaN-Based DAB Converters for Electric Vehicle Charging 312
Manel Vilella, Nestor Berbel, Gabriel Capella, Manuel Lamich, Jordi Zaragoza

Dimension Reduction of Multi-Source Time Series Sensor Data for Industrial Process 318
Jiao Meng, Xin Huo, Changchun He, Chao Zhu

A High-Precision Particle Detection ROIC with an Active Shaper in 40 nm CMOS with Sub 200 aC Sensitivity 324
Alireza Mohammad Zaki, Stoyan Nihtianov

A Multi-Layer-Stacked Structure of Underwater Capacitive Power Transfer System 330
Dingyi Feng, Yuanbo Zha, Jianxing Jiang, Xilin Dai, Xuan Wei, Hao Ma

Capacitive Coupler Dimensions Optimization Using Deep Learning-Based Genetic Algorithm 336
Xilin Dai, Dingyi Feng, Hao Ma

Evaluating Modulation Techniques in a Hybrid T-Type Power Converter Based on GaN and SiC Semiconductors for Electric Transport 342
David Lumbreras, Jordi Zaragoza, Néstor Berbel, Luis Romeral

Implementing Control Systems to Mitigate Current Harmonic Resonances: A Proportional-Resonant Control Approach 348
David Lumbreras, Jordi Zaragoza

More Efficient Training Strategy to Leverage Neurons in Neural Network 354
Cheng-Fu Liou, Yi-Cheng Yu

Accumulating Curriculum Knowledge Based on Neural Network Isolated Algorithm 358
Cheng-Fu Liou, Yi-Cheng Yu

Event-Triggered Attitude Controller Design for Unmanned Aerial Vehicles Under Cyber Attacks 362
Seungyong Han, Xuyang Guo, Yongsik Jin, Yongseob Lim, Suneel Kumar Kommuri

Enhancing Autonomous Driving Systems Through ROS2 and AWS Cloud: V2I Interaction and HPC Data Processing 369
Si Woo Lee, Yeong Gwang Choi, Jae Wook Jeon

Analysis of ROS2-Based Automotive Architecture Using Containers for SDV 375
Yeong Gwang Choi, Si Woo Lee, Jae Wook Jeon

Formation Control Algorithms for Drone Swarms and the Single Point of Failure Crisis: A Review 380
Chathura Wanniarachchi, Prasad Wimalaratne, Kasun Karunanayaka

Data Analysis from Legacy HMI Systems with Flexible In-Line Image Processing 386
Diego Lafeuille, Axel Vick, Jörg Krüger

Solution to Preserve Correspondence of Measurement and Light Source Using Multiple Simultaneously with MAPS 392
Luis Garcia Barth, Cornelius Neumann, Rainer Börret

An Event-Driven Modeling and Simulation Approach for Power Electronics Systems with Multiphysics Components 400
Shengyu Jia, Zhengming Zhao, Bochen Shi, Xuancen Wu

Capacitively Coupled Active Resonant Damper for HSPMSM Equipped with LCL Filter 406
Jiaxin Zhou, Fei Pen, Yunkai Huang, Yu Yao

Enhancing Recovery Performance in SOME/IP Service Discovery Protocol Against Temporary Link Failures 412
Hyeok Jun Choi, Sung Bhin Oh, Woo Jin Sung, Hye Min Kim, Sung Soo Yoon, Jae Wook Jeon

Industrial Semiconductor GPT: A Question-And-Answer System that Provides Professional Advice and Problem-Solving Methods for Semiconductor and Factory Equipment and Process 416
Yi-Cheng Yu, Cheng-Fu Liou, Shang-Wen Chuang, Chen-Yi Lee

Inverted Bottleneck Convolution Module for Yolov8 422
Hoang Van Thanh, Nguyen Thi Thu, Tu Minh Phuong, Nguyen Duc Vuong, Kang-Hyun Jo

Analysis of Real-Time Scheduling Algorithms Under Overload Conditions in a Multi-Core ECU 428
SeongHyeon Lim, SeJeong Lim, YoungSoo Do, JaeWook Jeon

CPCRNet: Cross-Source Point Cloud Completion-Registration Network for Intelligent Factory Virtual Scene Construction 432
Rui Zhang, Chong Peng, Zhongyuan Che

Analysis of the Musculoskeletal Effects of Lower Limb Slippage When Indoor Dogs Walk on the Wooden Floor 437
Daisuke Chugo, Miyabi Igarashi, Satoshi Muramatsu, Sho Yokota, Jin-Hua She, Hiroshi Hashimoto, Uemura Takashi, Hiroaki Kamishina, Yoshiharu Hata, Takayuki Yamada, Takahiro Uchida

Measurement of Plantar Pressures Through FSR Sensors and Spatial Resolution Through Interpolation 443
Dayanna Ortiz-Villaseñor, Julio C. Rodríguez-Quiñonez, Gabriel Trujillo-Hernández, Daniel Hernandez-Balbuena, Wendy Flores-Fuentes, Jonathan Jesus Sanchez-Castro

Exploring GaN Semiconductors Power Losses in DAB Converter Simulation Via PLECS 447
Eduard Martínez, Jordi Zaragoza, Manel Lamich, Gabriel Capellà, Néstor Berbel

Towards Automated Construction: Visual-Based Pose Reconstruction for Tower Crane Operations Using Differentiable Rendering and Network-Based Image Segmentation 455
Johannes Schüle, Mark Burkhardt, Andreas Gienger, Oliver Sawodny

Optimal Multi-Target Navigation Via Graph-Based Algorithms in Complex Environments 462
Brandon Black, Timothy Sellers, Tingjun Lei, Chaomin Luo, Daniel W. Carruth

Enhancing Emergency Stop Safety Using DDS-Based Vehicle External Communication 468
Hyeong-Keun Hong, Si-Woo Lee, Jae-Wook Jeon

Prior Knowledge Informed Neural Network for Subsurface Flow Prediction 472
Haibo Cheng, Shichao Li, Peng Zeng

Collision Avoidance Approach for Autonomous Driving Using Instance Segmentation 478
Jinsun Lee, HyeongKeun Hong, Jae Wook Jeon

Work-In-Progress Paper: Synergizing YOLOv8 and PCA for Size Estimation of Baby Broccoli 482
Rizan Mohamed, Gayan Kahandawa Appuhamillage, Joarder Kamruzzaman, Linh Nguyen

A Method for Plant Disease Enhance Detection Based on Improved YOLOv8 486
Ru Han, Lei Shu, Kailiang Li

Real-Time Anomaly Detection Using Hardware-Based Unsupervised Spiking Neural Network (TinySNN) 492
Ali Mehrabi, Nik Dennler, Yeshwanth Bethi, André van Schaik, Saeed Afshar

Specification Search and Completion for Contract-Based Design in Automatic Code Generation of Industrial Edge Applications 500
Deyuan Qu, Yingyue Zhang, Wenbin Dai

A Real-Time Scheduling Method for Industrial Edge Applications Based on Event Types 506
Shang Gao, Dali Yang, Xinkai Zhang, Wenbin Dai

A Platform-Independent Code Model for Operation and Information Technologies Convergences in Industrial Edge Applications 512
Maodong Lin, Yingyue Zhang, Qinyun Hu, Wenbin Dai

Robust Position Control System of MDOF Manipulator with Flexible Joints 518
Jin Ito, Toshiyuki Murakami

Groundeded Electrodes Approach to Reduce Bearing Currents: Robustness Analysis for Open-Slots Machines 524
Konstantin Vostrov, Ilya Petrov, Valerii Abramenko, Juha Pyrhönen

Eco-Driving and Energy Management for Fuel Cell Trucks Under Vehicle-Following Scenarios Considering Changeable Air Resistance Coefficient* 531
Ruiqing Ma, Bo Chen, Chengzhuo Hu, Yang Zhou, Rui Ma, Wentao Jiang

Converter-Driven Harmonic Resonance Instability in VSC-STATCOMs 537
Josep Arévalo-Soler, Dionysios Moutevelis, Marc Cheah-Mañé, Oriol Gomis-Bellmunt, JooYong Jung, Namkyu Kim, Young Jin Kwon

Forward Collision Avoidance Using a Monocular Camera Based on ROS2 543
Eun Ho Kim, Si Woo Lee, Jae Wook Jeon

XAI-Driven Lightweight Multiscale ConvLSTM Architecture for Video Violence Detection 548
Md. Al-Mamun Provath, Kaushik Deb, Kang Hyun Jo

Microgrids for Post-Disaster Power Restoration Application 554
Hengrui Tian, Ahmad Alhaji, Zhiyu Long, Mo-Yuen Chow

Applying Computational Design Model for Contract-Based Design in Automatic Code Generation for Industrial Edge Applications 560
Qiuyue Wang, Yingyue Zhang, Wenbin Dai

Recovering Semantics from Control Code for Improving Reusability in Industrial Edge Computing 566
Qinyun Hu, Maodong Lin, Yingyue Zhang, Wenbin Dai

Lightweight CPU-Based Face Detection with Efficient Feature Selector in Real-Time Applications 572
Muhamad Dwisnanto Putro, Adri Priadana, Duy-Linh Nguyen, Kanghyun Jo

Event-Triggered Finite-Time Course Control for Unmanned Surface Vehicles with Quantization 578
Yiming Sun, Yuqi Liu, Xi Jin, Changqing Xia

A Robust Constrained Control of Upper-Limb Exoskeleton for Isometric Rehabilitation Exercises 584
Matteo Pavia, Toshiyuki Murakami

Braking System Improvement Applying Eddy Current Braking System 590
Mehrbod Baniamerian, Behnam Karimi, Shayli Nikfal, MohamadSaleh Seydanloo, Soroush Nourolvara

Simulation on Digital Twin: Role of Artificial Intelligence and Emergence of Industrial Metaverse 594
Alexandre O. Júnior, José Luis Calvo-Rolle, Paulo Leitao

Monitoring System for Physical and Chemical Components in Panama's Water Resources 600
Luis Mendoza, Ibeth Wang, Danilo Cáceres

Low-Cost Hand Gesture Control for Swarm Quadrotor Using Wearable Device in Indoor Environments 604
Muhammad Luthfi Harwidjaya, Aufaclav Zatu Kusuma Frisky, Bilqis Hafsah Ababiel, Adhiwirya Panyananda Suryadi, Alfahri Rifki Fahrezi, Bambang Nurcahyo Prastowo

Linearized Finite Screw Deviation Model for a Multi-Axis Manipulator Calibration 610
Jaehyung Kim, Ryoonhan Kim, Min Cheol Lee

Generalized Framework for Quantitative Analysis of Robot Navigation Under Rain Conditions 614
Uma Ramu, Mercedes Premalatha Ramesh, Kishore Paranthaman, Shabashkhan Ghori Shalman Khan, Tan Chian Fern

Enhancing Robot Teleoperation in Remote Automation Production Through an Event-Triggered Control Strategy 621
Mengke Wang, Honghao Lyu, Ruohan Wang, Haiteng Wu, Lipeng Chen, Yi Chen, Haihui Yuan, Geng Yang

Fruit Ripeness Detector for Automatic Fruit Classification Systems 627
Duy-Linh Nguyen, Xuan-Thuy Vo, Adri Priadana, Muhamad Dwisnanto Putro, Kang-Hyun Jo

Implementation of Deep Generative Model for Generating Synthetic Wind Speed Data for Offshore Wind Turbine Maintenance Exploration 633
Andrie Pasca Hendradewa, Shen Yin

Examination of a Repelling Robot Equipped with an Automatic Shooting Device for Combating Damage by Birds and Beasts 639
Yuya Yamamoto, Satoshi Muramatsu, Katsuhiko Inagaki, Daisuke Chugo, Sho Yokota, Hiroshi Hashimoto

Implementation of Modular Multilevel Converter Exceeding 5 GW by Connecting Extra Full-Bridge Submodules 645
Yunfei Wang, Qiang Song, Wenhua Liu, Zhiyong Yuan, Qingming Xin, Biyue Huang

S^2MD^2: A Method for Semi-Supervised Maize Leaf Disease Detection 650
Chengcheng Chen, Weijia Zhang, Ronghao Fu, Tairan Wang, Tiantian Pang, Jiehong Wu, Zhiyong Zheng, Xianchang Wang

Genderless Modular Connection Mechanism Capable of Connection Detection Between Modules 656
Dongeun Choi, Seonghun Hong

Minimum-Waypoint Figure-Eight Trajectory Shaping for Airborne Wind Energy Systems 660
Kwang-Hee Han, Jieun Han, Won-Sang Ra

A History Information-Based A* Algorithm for the Path Planning with Multiple Alternative Destinations 666
Ke Wang, Wei Liang, Huaguang Shi, Jialin Zhang, Qi Wang

A Look-Up Table Based Inverter Nonlinearity Compensation Method Considering Parameter Inconsistency of Upper and Lower Bridge Arms 673
Yonghe Huang, Dianguo Xu, Yan Xu, Yong Yu, Junyu Zhao, Xubo Gong

Prediction of Fingertip Force Based on the Muscle Characteristics Using Element Description Method 679
Daiki Sodenaga, Issei Takeuchi, Daswin De Silva, Seiichiro Katsura

6-DOF Hybrid Cable-Driven Parallel Robot with an Articulated Manipulator 685
Shunichi Sakurai, Seiichiro Katsura

Evolution of Formation Control Algorithms for Unmanned Aerial Vehicles 691
Oshani E. Wickramasinghe, Naveen Rajan, Chathura Wanniarachchi, Kasun Karunanayaka, Prasad Wimalaratne

Reweighting Foveal Visual Representations 698
Xuan-Thuy Vo, Duy-Linh Nguyen, Adri Priadana, Kang-Hyun Jo

A Cascaded Timestamp-Free Event Camera Image Compression Method for Gesture Recognition 705
Lindong Wu, Xuefei Lv, Shaoning Jin, Chaoyi Ban, Zongwei Wang, Yuan Wang, Yimao Cai

Exploring Sampler Strategies in Unsupervised Person Re-Identification Training: Insights and Performance Analysis 710
Ge Cao, Qing Tang, Tran Tien Dat, Ashraf Uddin Russo, Adri Priadana, Kanghyun Jo

Group Spatial Attention for 3D Human Pose Estimation 716
Tien-Dat Tran, Ge Cao, Russo Ashraf, Kang-Hyun Jo

Simultaneous Facial Age Group and Gender Recognition Using Efficient Local-Global Attention Network for Intelligent Advertising 723
Adri Priadana, Duy-Linh Nguyen, Xuan-Thuy Vo, Muhamad Dwisnanto Putro, Ge Cao, Kanghyun Jo

Two-Steps Framework for Highly Accurate 6-DoF Pose Estimation 729
Teerawat Piriyatharawet, Wei-De Teo, Shin-Horng Chong

Smart Power Management Strategy for Electric Vehicle Grid Integration Through Localized Data 733
Ken King-Man Siu, Fengqi Gao, Miguel Rivera, Mohit Patel

Integrating Human Mobility Quantification into Epidemics Prediction for Effectively Assessing Impact of Transportation 739
Ruoling Peng, Kang Liu, Po Yang

On Evaluating R-GOOSE Messaging Latency Over 5G: A Swedish Case Study 745
Chen-Wei Yang, Nikolai Galkin, Dmitrii Drozdov, Valeriy Vyatkin

NOMA Enabled Multi-Access Edge Computing: A Joint MU-MIMO Precoding and Computation Offloading Design 749
Deyou Zhang, Honghao Lyu

AR-IoT Medi Assist: Revolutionizing Elderly Medication Management with AR and IoT 755
Sandun Adhikari, Kasun Karunanayaka, Amali Perera

Evaluating Form-Flexible Gripper in Robotic Manipulation Tasks 762
Niklas Grambow, Axel Vick, Bennet Schulz

UWB-Aided Indoor Pedestrian Monitoring for Ear Wearables 766
Khawar Naheem, Mun Sang Kim

Topology and Control Strategy for Three-Port Power Converter in Large-Scale PV Applications 770
Zhixian Liao, Binbin Li, Yingzong Jiao, Yilun Zhang, Linjie Han, Xiaodong Zhao, Dianguo Xu

Vertical Adjustment Method with Mechanical Power Factor Feedback 776
Taiyo Shimada, Kazuki Yane, Izumi Kotani, Saki Kozu, Takahiro Nozaki

A Custom Developed Flexible Tool for Real-Time Distribution Grid Visualization 782
Nabindra Raj Shrestha, Phurba Tshering Sherpa, Samundra Gurung, Kamal Chapagain, Bibek Mallik, Basanta Raj Pokhrel

Enhancing Voltage Gain and Assessing Current THD in Transformer of Photovoltaic Applications Through a New Triple Active Bridge Converter 787
Morteza Dezhbord, Sobhan Mohamadian, Amir Ghasemian, Concettina Buccella, Carlo Cecati

On the Accuracy of Flux Linkage Identification for Synchronous Reluctance Motor Drives 793
Vasyl Varvolik, Shuo Wang, Dmytro Prystupa, Yuli Bao, Giampaolo Buticchi

Virtual Inertial Sensor Data Generation Using Angular Velocity Splines 798
Thanh Tuan Pham, Young Soo Suh

AI-Based Coordination and Optimal Power Sharing of Grid Forming Inverters 801
Uzair Asif, Silvanus D'Silva, Mohammad B. Shadmand

CropFinder: AI-Based Detection and Tracking of Crops for Precision Agriculture 807
Savini Abayaratne, Daobilige Su, Yongliang Qiao

Review of Fault Diagnosis Based Protection Mechanisms for Battery Energy Storage Systems 813
Solomon N. Adasah, Ziqi Wang, Shaoli Hu, Skieler Capezza, Junya Shao, Mo-Yuen Chow

Camera Pose Optimization with Genetic Algorithm in Digital Twin 819
Kwanho Kim, Kanghyun Jo

A GPU Pipeline for Hyperparameter Optimization on IoT Platforms: Comparing Pulse-By-Pulse Vs. Fixed Time Windows for Cuffless Blood Pressure Estimation 823
José A. González-Nóvoa, José Fariña, Juan J. Rodríguez-Andina, César Veiga

Model and Software In-The-Loop Testing of Engine's Speed and Load Control Functionality 829
Anam Tahir, Pontus Prinsén, Jari Böling

Model-Based Co-Simulation Method for PLC Programming: Interaction Design and Optimization..... 833
Jianguo Lan, Wenbin Zou, Qimin Xu, Yanling Lai, Shanying Zhu

Exploring Ergonomic Advancements and Smart Technologies in Future Walkers..... 839
Isabel Seguí-Verdú, Larisa Dunai, Jose Alfonso Antonio-Daviu

Embodied AI Through Cloud-Fog Computing: A Framework for Everywhere Intelligence..... 847
Dongxiao Hu, Dapeng Lan, Yu Liu, Jiahong Ning, Jia Wang, Yun Yang, Zhibo Pang

Estimation of Multi-State Dependent Disturbance by Using Multi-Dimensional Gaussian Process 851
Hoyeong Yeo, Hanul Jung, Sehoon Oh

Remotely Controlled Excavator System with Enhanced Safety for Built Environments..... 855
Lee Men Huang, Samuel Cheong, Pradeep JanakiRaman, Lim Cheng Leong, B. Selvaraj, Cs Meera

SLIP Nature Embodied Robust Quadruped Robot Control..... 861
Jin Song Hong, Changmin Yeo, Sangjin Bae, Jeongwoo Hong, Sehoon Oh

A Novel Approach for Efficient Gaussian Mixture Model Using Dynamics-Motivated Optimal Excitation 865
Taehoon Kim, Juwon Jeong, Taejune Kong, Hyunwook Lee, Sehoon Oh

Identification of Flexible Joint Robot Inertia Matrix Using Frequency Response Analysis..... 869
Kiyoung Choi, Junho Song, Wonbum Yun, Deokjin Lee, Sehoon Oh

Extended State Observer Based Stator Flux Linkage Estimation of Nonlinear Synchronous Machines 873
Seunghun Jang, Bernd Pfeifer, Christoph M. Hackl, Kyunghwan Choi

Neural Network-Based Nonlinearity Estimation of Voltage Source Inverter for Synchronous Machine Drives 878
Yeongho Jeong, Seunghoon Jang, Kyunghwan Choi

Model Predictive Control with Fixed Switching Frequency for Thyristor-Controlled LC-Coupling Hybrid Active Power Filter 883
Wai-Kit Sou, Rui P. Martins, Chi-Seng Lam

Neumann Series Based Linear Bus Injection Model of Three-Phase AC Power Flow for Active Distribution Network..... 887
Cheng Gong, Chi-Seng Lam

Machine Learning-Based Protection and Fault Identification of 100% Inverter-Based Microgrids 891
Milad Beikbabaei, Michael Lindemann, Mohammad Heidari Kapourchali, Ali Mehrizi-Sani

Development of Transmission Force Controllable Actuator for Motion Platform 895
Dasol Cheon, Sehoon Oh

Collision Prediction Using LiDAR Sensor in Digital Twin Environment 899
Minseung Kim, Jongchae Lee, Kanghyun Jo

Author Index