2024 IEEE International Conference on Advanced Information, Mechanical Engineering, Robotics and Automation (AIMERA 2024)

Wulumuqi, China 18-19 May 2024



IEEE Catalog Number: ISBN:

CFP24RZ5-POD 979-8-3503-4334-2

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:
 CFP24RZ5-POD

 ISBN (Print-On-Demand):
 979-8-3503-4334-2

 ISBN (Online):
 979-8-3503-4333-5

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

001-230134	Patent Recommendation Methods Based on Transformer Encoders and Regularization Strategies Wan Zheng, Qingyan Ding, Na Li, Yu Pan, Xuecheng Dong	1
002-230140	AI-based Lower Upper Bound Assessing Framework for Predicting Mechanical Properties of Hot-rolled Seamless Steel Pipe Jingdong Li, Xiaochen Wang, Quan Yang	9
003-230142	Development of Deep Learning-based for Hot-rolled Seamless Steel Pipes' Outer Surface Defect Recognition System Xueyuan Wang, Jiaqi Chen, Guodong Liu, Lijie Hu, Xiaochen Wang, Quan Yang	15
004-230143	A Patent Fast Recommendation Algorithm Based on User Requirements Combined with an Inverted Table Wan Zheng, Qingyan Ding, Na Li, Yu Pan, Xuecheng Dong	21
005-230146	Thickness Measurement of Alloy Steel Carburizing Layer Based on Laser Ultrasonic Xing Mao, Dong Xu, Shaotong Zhang, Xiaocheng Wang, Quan Yang, Ruixiao Wang, Wei Sun, Rengfei Yu	27
006-230148	High Precision Long Endurance Attitude Algorithm for Marine Control Based on MEMS Sensors Yanyan Pi, Yongbo Li, Zeyuan Feng	34
007-230149	A Novel Strategy of Additional Tension Optimization for Strip Tandem Cold Rolling Enabled by Artificial Intelligence Zhonghui Wang, Xiaochen Wang, Jingdong Li, Zedong Wu, Quan Yang, Tao Zhang, Bo Liu, Yi Ren	40
008-230154	Design and Test of Power Chassis for Small Tracked Sand Barrier Placing Vehicle Weiqiang Zheng, Zehui Wang, Liping Zhang, Jianqiao Long, Chang Liu, Feiyang Xing	47
009-230155	Planning Research and Simulation Analysis of Distributed Generation in Distribution Network Qingtong Sun, Qing Liu	52

010-230156	High Speed Laser Stripe Extraction Method for Measuring Strip Flatness using Linear Structured Laser Yibing Fan, Xiaochen Wang, Jianwei Zhao, Shuzong Yan, Kaiyuan Zhu, Quan Yang	57
011-230160	Method for Live Determination of Caenorhabditis Elegans Based on Deep Learning and Image Processing Jinfang Weng, Qizhao Lin, Suxia Chen, Wenyin Chen	62
012-230164	Prediction of Head Deviation of Finishing Strip Steel Based on PSO-SVR Zhuohao Dai, Hainan He, Xiaochen Wang, Quan Yang, Liang Zhang, Chunhua Luo	69
013-230166	Hot Rolling Finishing Mill Interstand Strip Image Classification based on Simple Convolutional Neural Network Wanzhang He, Wei Sun, Xiaochen Wang, Quan Yang, Shuzong Yan, Tao Zhang, Bo Liu, Yi Ren	75
014-230168	Finite Element Simulation of Hot Rolled Steel Strip Flying Shear Process at High Speed LI Ke, CHEN Min, GAO Aimin	80
015-230169	A Novel Soft Modeling Framework for Real-time State Prediction in Strip Galvanization Process Jinbo Zhou , Youzhao Sun, Yamin Sun, Quan Yang, Xiaochen Wang, Jiaqi Chen	86
016-230170	Analysis of Three-Body Pitching Motion of New Unmanned Boat Based on Genetic Algorithm Di Zhang, Guoming Li, Ke Zhang, Meng Li	91
017-230171	Diagnosability of the Lexicographic Product of Paths and Paths under PMC Model Bu Chen, Feng Li	95
018-230180	Energy Saving Oriented Electricity Load Calculation of High-speed Train Group: A Distributed Computation Method Zhe Zhang, Yani Sun, Muhetabaier Baihetiyaer	102
019-230182	Simulation Calculation of Energy Load at Railway Stations Based on Dynamic Passenger Flow Muhetabaier Baihetiyaer, Zhe Zhang, Yani Sun	107

020-230183	Research on the Assessment Method of Lower Limb Muscle Fatigue Based on Surface Electromyography	114
	Bowen Li, Nan Su, Qing Tao, Zhiwei Zhou, Zhenning Yang, Hao Pei	
021-230184	A Novel Scheme for Controlling Intelligent Television by Using Intelligent Camera	120
	Zhaoxiong Zhou	
022-230186	An Improved Monocular ORB-SLAM Using Scaled-Invariant Features Jingjing Fu, Ping Ma, Zhaohong Jia	125
023-230187	Data Analysis of Public Opinion Dissemination in Online Emergencies Based on the SEIR Model	131
	Tian Ziyu, Pang Yunkun, Tong Dong	
024-230188	A Novel Adaptive Deep Belief Network for Bearing Fault Diagnosis in Variable Working Conditions Based on Salp Swarm Algorithm Under Small Sample	138
	Qingbin Tong, Xin Qi, Xuedong Jiang, Feiyu Lu, Ziwei Feng, Jianjun Xu	
025-230189	Analysis for influences of eccentric distance on grinding performance of eccentric AG mill using DEM simulation Ziqiang Fang, Songlin Peng	146
026-230190	Research on the Calculation Model of the Influence Function Method for the Complete Roll System of a 20-High Rolling Mill Yang Zhao, Xuming Liu, Jinlan Bai, Junsheng Wang, Jie Sun, Guodong Wang	151
027-230191	Output Feedback Control for High-Order Nonlinear Systems With Practical Predefined-Time Convergence Chen Wang, Yani Wang, An-Min Zou	158
028-230194	A Simulation-based Optimization Method for the Number of Toll Lanes of New Toll Stations After Canceling Provincial Toll Station in China Xinfeng Xue, Wei Peng	163
029-230196	Modeling and Data Analysis of Strip Steel Edge Tracking Efficiency Based on ABAQUS Jijie Ding, Xihua Xu, Qing Yang, Hainan He, Xiaochen Wang, Quan Yang	168

030-230197	Research on Load Transfer Law of Artillery Equipment under Complex Boundary Conditions Can Ren, Hua Gao, Chunlai Shan, Jun Liu, Bin Gu, Yingchao Wu	174
031-230225	Monocular Dynamic Object Detection withmulti-modal fusion Li Li, Yingcai Wan, JiShen Peng	179
032-230237	Multi-Classification Segmentation Method of Gastric Cancer Pathological Images Based on Deep Learning Hehu Zhou, Jingshan Pan, Li Na, Qingyan Ding, Chengjun Zhou, Wantong Du	186
033-230239	Simulation and optimization of the BD1 pre-rolling heating process Xin Liu, Li Gong, Chunduo Dai, Wenyue Liu, Shuai He, Meihui Sun	192
034-230241	Flatness Measurement of Steel Strip Using Three Laser Stripes Kaiyuan Zhu , Jianwei Zhao, Yibing Fan, Shuzong Yan, Xiaochen Wang, Quan Yang	198
035-230242	MyoLite: Compressible Neural Networks Based on Biokinematics and Self-attention for Fingers Motion Tracking Wei Chen, Lihui Feng, Jihua Lu	202
036-230243	A Low Complexity Parameter Extraction Digital Predistortion Technique for Frequency Hopping Transmitter Yaqi Wu, Xu Lu, Han Xiong, Xinyue Zhu, Zunyan Liu, Zhang Chen	210
037-230249	Electromagnetic-Mechanical Coupled Winding Vibration Characteristics Analysis of Grounding Transformers Zijian ZHOU	214
038-230250	Quaternion-Based Finite-Time Attitude Control forSpacecraft Subject to Multiple Constraints Bixia Lai, Yanling Tang, Xiaoting Li, An-Min Zou	219
039-230251	Quantitative Assessment of Lower-limb Motor Function Based on Multimodal Gait Data for Hip Osteoarthritis Lina Tong, Yunbo Li, Chen Wang, Liang Peng, Yong Huang	224
040-230254	Multi-LiDAR-Inertial Odometry Combined with Vehicle Kinematics for Autonomous Buses Tao Song, Ying Zheng, Pengcheng Wang, Xinkai Wu	230

041-230255	Research on Stress Prediction Model of Steel Plate Leveling Based on FEM and PSO-BP	238
	Qiyuan Zhang, Youzhao Sun, Xiaochen Wang, Quan Yang, Jinbo Zhou, Yamin Sun	
042-230256	Classification Method of Hot-Rolled Steel Strip Mechanical Properties Dataset Based on Mechanism and Data Mining to Improve Model Accuracy Shiwei Zhang, Feifei Li, Qiang Guo	243
043-230258	Dynamic Modelling and Adaptive Control of An Upper-Limb Robotic Exoskeleton Chen Wang, Yaqi Zhang, Liang Peng, An-Min Zou, Zeng-Guang Hou	249
044-230259	Single and Multiple Holes Image Visualization of Aluminum Surface Detected by Laser Ultrasonic Wave Technology Ali Wahab, Shaoyu Zhu, Weizhen Jin, Umair Iqbal, Hashir Azam, Yanjie Zhang	255
045-230260	A Model-Based Approach to Evaluate Electromagnetic Responses in Vehicle Control Systems Influenced by Harness Shielding and Grounding Bowen Wang, Shuyan Zhang, Zhe Zhang	261
046-230261	Nondestructive Detection of Internal Quality of Hami Melon by Hyperspectral Technology Combined with Chemometrics FengXia Li, Quan Yang, XiaoChen Wang, WenJun Gao, Yong Huang, Junchi Yin	269
047-230262	Research on Contact-Type Gravity Field Testing Method for JN-06 Accelerometer Based on Turntable Lixun Lu, Xinping Xu, Huan He	275
048-230266	Image Restoration of Underwater Bubble Disturbance Based on Improved U-Net Network Yukun Wang, Fan Ye, Xiaobo Chen, Juntong Xi	280
049-230267	Development and Application of a Model for Cold Strip Rolling Human Operating Frequency Determination and Evaluation Jingdong Li, Jinbo Zhou, Xiaochen Wang, Quan Yang, Youzhao Sun, Haotang Qie	285
050-230268	Prediction of Strip Finish Rolling Width Spread Based on Multi-Granularity Cascade Forest Xingguo Fan, Xudong Li, Yang Yu, Haiyu Wang, He Yan, Kun Fang	292

051-230271	Reconstruction of Residual Stress Fields on Workpiece Surface Using Surrogate Models	297
	Junjie Tang, Kuanmin Mao	
052-230272	Data Analysis on the Impact of Internal Defects on the Torsional Resistance of Thin-walled Cylinders	302
	Shang Wang, Weimin Huang, Chuan Liu, Jing Ma, Yuyang Liu, Zehua Xing	
053-230273	Numerical Analysis of the Impact of Internal Defects on the Mechanical Properties of Solid Axles under Combined Bending and Torsion Shang Wang, Hui Jiang, Chuan Liu, Jing Ma, Yichen Sun, Ao Zhang	309
054-230274	Numerical Analysis of Internal Defect Detection in Aluminum Alloy Pipes Aims to Provid Data Supportfor AI Models Pengshihan Bai, Shang Wang, Jianqiao Long, Jing Ma, Nandu Li, Kexin Zheng, Steve Bruce	316
055-230275	Data Analysis of Energy Absorption Behavior of Aluminum Alloy Buffer Pengshihan Bai, Shang Wang, Chuan Liu, Ruosheng Dang, Jing Ma	321
056-230276	LSTM-based modeling of the Tangnaihai and Fen River basins Rainfall Runoff Simulation Zhengfang Jiang, Baohong Lu, Zunguang Zhou, Yirui Zhao	328
057-230277	A Panoramic Roaming Method of Adaptive Image Content Quantong Lv, Long Wang	336
058-230278	Optimizing Production through Digitalization: A Case Study on Smart Manufacturing in Port Machinery Huisheng Ou, Jiabin Liu, Zhenhua Tan, Wenying Zhang, Danbin Wang	343