5th International Conference on Electrical Engineering, Control, and Robotics (EECR 2019)

IOP Conference Series: Materials Science and Engineering Volume 533

Guangzhou, China 12 – 14 January 2019

ISBN: 978-1-5108-8737-4 ISSN: 1757-8981 Printed from e-media with permission by:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

This work is licensed under a Creative Commons Attribution 3.0 International Licence. Licence details: http://creativecommons.org/licenses/by/3.0/.

No changes have been made to the content of these proceedings. There may be changes to pagination and minor adjustments for aesthetics.

Printed by Curran Associates, Inc. (2019)

For permission requests, please contact the Institute of Physics at the address below.

Institute of Physics Dirac House, Temple Back Bristol BS1 6BE UK

Phone: 44 1 17 929 7481 Fax: 44 1 17 920 0979

techtracking@iop.org

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 Email: curran@proceedings.com Web: www.proceedings.com

Table of contents

Volume 533

2019 The 5th International Conference on Electrical Engineering, Control and Robotics (EECR 2019)

12-14 January 2019, Guangzhou, China

Accepted papers received: 16 April 2019 Published online: Pl Online DATE

Preface

Preface

Conference Committee

Peer review statement

Power Electronics and Power Transmission Technology

Disaster Risk Assessment of Transmission Lines Based on TOPSIS

Taowei Chen, Ling Zhu, Qiao Xia, Honglei Deng and Chen Zhou....1

Research on Distributed Protection in Switch Stations Based on GOOSE

Xin Jiang and Baoji Yun....11

Study on stability evaluation in multi-send hybrid AC/DC transmission system

Rong Li....19

The Complex Torque Coefficient Applied in Subsynchronous Oscillation Caused by <u>HVDC</u>

Hanhua Zhang, Jiaqi Li, Jun Wen, Shuang Zhang and Bei Tian.....29

Research on predictive current control method of PMSM for continuous switched boost inverter

Liyong Yang, Shuo Han, Shuo Liu and Xiaojuan He.....37

Study on the Reactive Power Control in Hybrid DC Asynchronous Interconnection System

Yan Han, Yang Jia, Che Keshan, Chen Hui, Yang Wenli, Liu Ke and Bao Jixiu.....44

Influence of transmission distance on magnetically coupled resonant radio energy transmission system

TONG JUN, Yang Xingchen, LI Facheng and Li Xiang.....53

Performance comparison of series and parallel DC power supply system

Shengli Kong, Xudong Leng, Weidong Ma, Lei Liu and Feng Zhang.....59

Research on Push-pull-type Inductively Coupled Power Transfer System for ZVS

Liu Shulin, Yan Jizhi, Tao Shitong, Hu chuanyi and Wu hao.....67

Electrical Engineering and Automation

Study on three-Study unbalanced control of low voltage phase distribution network

Chu Zhang, Zhouxing Fu, Huanfei Ye and Dan Niu.....75

Linear regression model for screening SiC MOSFETs for paralleling to minimize transient current imbalance

James Abuogo, Zhibin Zao and Junji Ke.....82

Research on saturation model of ferromagnetic resonance voltage transformer

Qinghao Zheng, Yunge Li, Nana Zhang, Fan Gan and Zhouxing Fu.....90

A Line Loss Calculation Method for Arbitrary Partition of Power Grid Based on Measurement Resource and Matpower

Kai Yi, WeiZhou Wang, RunQing Bai, Xin He and TianJun Jing.....98

Simulation of Relay Coordination by Labview and the Effect of Relay Coordination on Cost

Hasan Çimen, Recep Akkan and İsmail Yabanova.....107

The Analysis and Design of High-power Intrinsic Safe Forward Converter Based on Power-i Technology

Liu shulin, Wu hao, Zhang yuxi, Hu chuanyi and Yan jizhi.....115

Influence of electric traction system on power grid harmonics

Meng Tan, Dongshan He, Jun Wen, Xiaohong Geng and Sichao Wang.....123

Loss Analysis and Optimization Design of Half-Bridge LLC Resonant Converter

TONG Jun, LI Facheng, LI Xiang and YANG Xingchen.....131

Support Vector Machine based on clustering algorithm for interruptible load forecasting

Xiang Yu, Guangfeng Bu, Bingyue Peng, Chen Zhang, Xiaolan Yang, Jun Wu, Wenqing Ruan, Yu Yu, Liangcai Tang and Ziqing Zou.....138

Mechatronics and Control System

Research on Position Sensorless Control of PMSM Based on Improved SMO

Zhang Guoqing, Xiong Xinhong, Zheng Yousheng, Zhang Yanhui, Chen Lianbo, Wu Xinyu and Feng Wei.....146

Research on torque ripple suppression of BLDCM method based on Cuk converter

TONG Jun, LI Xiang, LI Wenquan, LI Facheng and YANG Xingchen.....153

Innovative Design of the Cooling Topologies for Electric Vehicle Motors

ZHANG ZI-CHAO, SONG QIANG and BILAL AHMED.....161

Parameter Tuning of PID Controller of Servo System Based on Particle Swarm Optimization Algorithm

Chen Lianbo, Xiong Xinhong, Zheng Yousheng, Zhang Yanhui, Zhang Guoqing, Wu Xinyu and Feng Wei.....168

Fuzzy force control based on grasped objects stiffness of tendon-driven underactuated prosthetic hand system

Luo Huanxin and Deng Hua.....175

Speed Estimation of Asynchronous Motor Based on Model Reference Adaptive Method and On-line Identification of Rotor Time Constant

TONG Jun, SHI Lei, LIU Li-juan and Fan Chen-yue.....183

Design of five axis welding robot based on leadshine control system

Zhao Yongguo, Li Minglei, Wang Peng and Han Yuanda.....192

Novel Experiment Design for Unmanned Aerial Vehicle Controller Performance Testing

Cherub Dim, Francis Nabor, Giancarlo Santos, Martin Schoeler and Alvin Chua.....200

Development of AUV path planner based on unstable mode

Mikhail Medvedev and Boris Gurenko.....210

A Satisficing Game Theoretic Approach to Multi-Aircraft Collision Avoidance

Weiye Wang.....218

Mechanical and Vehicle Engineering

Connected Automated Guided Vehicles in a Smart Container Terminal

Mohamed K. Watfa and Khaldon Al Karmadi.....226

Feasibility Study of Point Type Equipment for Detecting Train Transponder System

Fei Chen and Jingyang Lv.....234

Location and Capacity Planning of Electric Vehicles Charging Piles

Yi Shimin, Sun Yunlian, Zhang Xiaodi, Wu Ying, Hu Jinlei, Zou Qiwu, Xie Xinlin and Fu Bin....242

<u>Prediction of Bearing Remaining Useful Life based on Mutual Information and Support</u> <u>Vector Regression Model</u>

Wentao Sui, Dan Zhang, Xiaomei Qiu, Wei Zhang and Lin Yuan.....251

Kinematics and workspace analysis of a modified portable exoskeleton arm

Xiao yongfei, Zhai xinpeng, Fu xiaochun and Ji xiangjing.....258

The Location of Electric Vehicle Charging Station Based on TLBO Optimization Algorithm

Hu Jinlei, Sun Yunlian, Yu Junwei, Lu Jue, Zou Qiwu, Xie Xinlin and Fu Bin.....266

A Novel Prediction Algorithm for the Cross Temperature Estimation of Blast Furnace

Yan Jin, Sen Zhang and YiXin Yin....274

Modern Electronic Technology and Application

Design of Digital Control Phase-Shifting Full-Bridge Switching Power Supply

Hucheng He, Yanzhao Liu, Chao Wang and Chenyang Zhang.....283

A Camera Tracking System Based on Closed-loop Kernelized Correlation Filters

Muzi Li, Bo Cheng, Shuai Zhao and Junliang Chen.....291

Analysis of Misalignment Effect on Wireless Charging System for Inspection Robots Han Liu, Linlin Tan, Xueliang Huang and Dariusz Czarkowski.....298

Research on the PFC Mechanism of Forward-Flyback Converter

Liu shulin, Hu chuanyi, Cao jian, Yan jizhi and Wu hao.....306

Multi-sensor cross cueing technology based on grey wolf algorithm

WEI Daozhi and XIE Jiahao.....314

<u>A New Principle of Breaker Failure Protection Based on Station Information Sharing</u> Yong Pan, Wei Han, Jinfeng Geng and Yao Liu.....321

Research on Optimal placement for GIC mitigation with Blocking Device

Xiaoliang Ning, Qing Liu, Xikai Cui, Chendong Wang and Yinglan Wang.....330

Research on the forward distance detection algorithm based on the camera switching MengYuan Chen, Dehong Tian, Xiao Xiao and ChengYuan Bian.....338

Computer and Information Engineering

Cloth Recommender System Based on Item Matching

Yan Lei, Long Chen and Ziyu Guan.....350

Design of Lightweight Convolutional Neural Network Based on Dimensionality Reduction Module

Yue Zhou, Yanyan Feng, Shangyou Zeng and Bing Pan.....358

Short Text Classification Improved by Feature Space Extension

Yanxuan Li.....364

A New Improved Boosting for Imbalanced Data Classification

Zongtang Zhang, JiaXing Qiu and Weiguo Dai.....372

Influence Maximization: A Time-Space Efficient Algorithm

Ganming Xia.....380

Design and Implementation of an Intelligent Operation and Maintenance Management Cloud Platform for Green Buildings Group

Qu Chenfei, Wang Donglin, Liu Wenxia and Zhao Pengcheng.....387

Multilevel Risk Prediction of Cardiovascular Disease based on Adaboost+RF Ensemble Learning

Runchuan Li, Shengya Shen, Gang Chen, Tiantian Xie, Shasha Ji, Bing Zhou and Zongmin Wang.....397

Word-to-word Machine Translation: Bilateral Similarity Retrieval for Mitigating Hubness

Mengting Luo, Linchao He, Mingyue Guo, Fei Han, Long Tian, Haibo Pu and Dejun Zhang.....405

Detection of Android Applications Homology Based on the Authors' Programming Style

Jiayu Xu....414

Image Processing

DA-U-Net: Densely Connected Convolutional Networks and Decoder with Attention Gate for Retinal Vessel Segmentation

Cong Wu, Yixuan Zou and Jinhao Zhan.....423

Face Image Manipulation Detection

Lilong Wen and Dan Xu.....430

Real-time Measurement, Computing and Visualization of Plant Structure

Guo Li, Tingting Qian and Shenglian Lu....437

Small Aircraft Detection in Remote Sensing Images Based on YOLOv3

Kun Zhao and Xiaoxi Ren.....444

Fast Implementation of Image Structural Similarity Algorithm

Yiwen Xu, Zhongwen Zhuang, Weimeng Li and Ying Fanga.....451

Ocular Rectus Muscle Segmentation Based on Improved U-net

Cong Wu, Jinhao Zhan, Yixuan Zou, Fagang Jiang and Junjie Yang.....457

Target Pedestrian Tracking Algorithm Based on Occlusion Scene

Guocai Du.....463

A Gait Patterns Recognition Approach Based on Surface Electromyography and Threeaxis Acceleration Signals

Jinghan Hao, Peng Yang, Lingling Chen and Yanli Geng 469

Femur segmentation in X-ray image based on improved U-Net

Fan Lianghui, Han Jun Gang, Jia Yang and Yang Bin.....478

Efficient Small Object Detection with an Improved Region Proposal Networks

Dong Wen Ma, Xiao Jun Wu and Honghong Yang.....485