## **2018 IEEE International** Conference on Automation, **Electronics and Electrical Engineering (AUTEEE 2018)**

Shenyang, China 16 – 18 November 2018



**IEEE Catalog Number: CFP18R27-POD ISBN**:

978-1-5386-7862-6

## Copyright $\odot$ 2018 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:
 CFP18R27-POD

 ISBN (Print-On-Demand):
 978-1-5386-7862-6

 ISBN (Online):
 978-1-5386-7861-9

## **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**

Paper Information	Page
A Structural Retention Migration Affinity Propagation Algorithm Wang Xi, Li Chen, Hongxia Ji, Yao Jun	1 AU021
An Effective Fault Diagnosis Approach Based On Gentle AdaBoost and AdaBoost.MH Peng Peng, Yi Zhang, Yinan Wu, Heming Zhang	8 AU022
Methane Detector Based on the Principle of NDIR Jingjing Wu, Hongyan Chen, Xinna Zhang, Qianjin Hu	N/A AU024
Identification and Ranking of Vulnerable Interdependences in Cyber-Physical Power System Yuqi Han, Wentao Zhang, Jiawei Yu, Shengyong Ye	18 AU030
A Semi-supervised Classification Method Using Hidden Features Xi Wang, Hongxia Ji, Jun Yao, Ze Zhang, Beizhi Ma	24 AU031
Design of Variable Flow and Variable Pressure Efficient Control Function of Ship Central Cooling Water Yongxiang Wang, Ruilin Zhang, Zhanjin Zhong	30 AU033
A Modified Multi-objective Simulated Annealing Algorithm for Fixed-outline Floorplanning Yifan Weng, Zhen Chen, Jianli Chen, Wenxing Zhu	35 AU047
The Design of 220GHz Power Synthesis Circuit Based on 3dB Waveguide Couplers Zhongqian Niu, Bo Zhang, Yong Fan, Zhe Chen	40 AU057
A New Electric Energy Metering Scheme Considering Loads Nonlinearity Factor under Harmonic Conditions Bo Zhang, Yuzheng Tang, Jingzong Zhang, Hongkun Chen, Linghua Zeng, Tong Ding	43 AU058
Research on Full-band Arc Simulation Based on Logic Judgment Yifeng Liang, Yang Shen, Donghui Zhang, Yong Zhu, Fan Chen, Chuansheng Wang	49 AU059
Optimized Radar Data Association Algorithm Inspired by Human Cognition Mechanism Wang Shuliang, Bi Daping, Ruan Huailin, Wu Shilong, Zhang Kui	54 AU062
Simulation of a Highly Efficient Doherty Power Amplifier with Second Harmonic Control Lu Chen, Gun Li	60 AU063
A Distributionally Robust Optimization Model for the Decomposition of Contract Electricity Considering Uncertainty of Wind Power Xiaodong Shen, Junyong Liu, Hebin Ruan	64 AU064

A Multiple Layers Re-ranking Method for Person Re-identification Shuze Geng, Ming Yu	69 AU065
Application of Simplified Cubature Kalman Filter in Fire Control Attack by Airborne Infrared Search and Track System Independently Zhang Feng, Zhou Dezhao, Xie Feng	77 AU067
Blind Source Separation for Face Image based on Deep Learning Xiangning Zhao, Qijia Liu, Jianyu Li, Yina Guo	83 AU068
High-speed Stereo Matching Algorithm for Ultra-high Resolution Binocular Image Baopeng Xu, Shuying Zhao, Xin Sui, Chunsheng Hua	87 AU070
A Multi-agent Formation Control Algorithm in Interference Environment Ziqiang Zhou, Li Liu, Zhenyu Wang, Chaoyong Li, Donglian Qi	91 AU075
A Countermeasure for the Restraint of the Differential Protection in Converter Transformer Wan Danhui, Chen Yu, Zheng Junchao, Wen Minghao	97 AU078
Study on Coherent Synthesis of Broadband Time Inversion Signals Siyuan Tian, Jianchong Huang, Qiuju Chen	102 AU079
Scene Classification of Optical Remote Sensing Images Based on CNN Automatic Transfer Jicheng Quan, Chen Wu, Hongwei Wang, Zhiqiang Wang	110 AU087
Power Hardware in the Loop Test of Half Wavelength Active Overvoltage Suppression Device Liu Zongye, Dai Chaobo, Zhao Guoliang, Sun Yiqian, Yu Yongjun, Zhao Heyong, Zhang Yanzi	115 AU089
Analysis of Optimal Scheduling Model for Virtual Power Plants Considering the Cost of Battery Loss Lu Tianqi, Yan Chuang, Li Zhanjun, Wang Tao, Nan Zhe, Gu Zheng, Yang Jiye, Jiang Li, Liu Ran, Ma Qiang, Li Dongxue, Chen Youhui, He Xin, Song Zhuoran, Zhang Jian	N/A AU095
An Optimization Algorithm Based on GA for Multicast Network Along Xu, Linghua Zhang	126 AU098
A New Adaptive Layering Algorithm for Sound Speed Profile Qi Gu, Jian Li, Qingshui Hao, Jianmei Cao	131 BC326
Research on STATCOM Simulation of H Bridge Cascade Multilevel Inverter Based on CPS-SPWM Control Lu Zhiwu, Mao Lukai, Zhou Wei, Xu Xianglian	138 BC329

Statistical Analysis based on Temperature Matrix for Hardware Trojan Detection Yongkang Tang, Shaoqing Li, Liang Fang, Jihua Chen	143 BC <sub>33</sub> 0
A Differential balun-LNA for Multistandard Receivers in 0.13 $\mu$ m BiCMOS Jian Tao, Xiangning Fan*, Xin Chen, Yuan Zhao	150 BTS256
Design of Power Intelligent Safety Supervision System Based on Deep Learning Chen Bin, Chen Hui, Zeng Kangli	154 BTS257
Confidence-based Fast Intra Prediction Algorithm Hongan Wei, Binqian Zhou, Jinling Chen, Yiwen Xu	158 BTS259
LSH Conflict Counting Method Based on Big data Xiaoxiao Liu, Hong Chen, Zhikun Luo, Jie Xiang	162 BTS260
Fast Mode Selection Algorithm for HEVC Intra Encoder Minghai Wang, Hongan Wei, Ying Fang, Yanjie Song, Zhongwen Zhuang	169 BTS261
Content-aware Video Quality Modeling Based on Neural Network Jinling Chen, Denghui Huang, Huiwen Huang, Yisang Liu, Ying Fang	173 BTS262
Study on Image Recognition Based on PCNN and LVQ Kong Jun, Wang Xiaorui	177 G4421
Research on Non-contact Heart Rate Signal Detection Based on Video Image Weijun Liu, Yunlin Shen, and Qingyang Wei	181 G4422
Performance Test and Analysis of Missile Guidance System Jiang Ming, Ma Jinlong	N/A G4425
Research on Fusion Method of Multi-source Prior Data of Equipment Maintenance Da Xu, Chu Guan	N/A G4427
Simulink Implementation of Frequency-hopping Communication System and Follower Jamming Xinfeng Fan, Zhiliang Tan	192 G4428
Research on RCS Characteristics of Bottom Row Missile Based on Moment Method Wang Baojun, Wang Dajun, Liu Heng, Tang Minggang, Xu Fang	196 G4429
A Novel Three-dimensional Indoor Localization Algorithm Based on Visual Visible Light Communication Using Single LED Weipeng Guan, Shangsheng Wen, Hanlin Zhang, Lizhao Liu	202 G4433

Efficient Load Balancing for Cellular Networks through D2D Relay and User Association Xuewen Yan, Chao Dong, Yuben Qu	209 G4434
Spatial Diversity-Achieving Quadrature Spatial Modulation Ping Yu, Jianzhong Mao, Fuchun Huang	216 G4435
Improving pix2code based Bi-directional LSTM Yanbin Liu, Qidi Hu, Kunxian Shu	220 G4442
Partial Spoof Fingerprint Detection with a Hierarchical Scheme Shao Junfei, Shi Guangshun, Li Yue, Li Yuxuan, Qiu Demin	224 G4447
Research on Robot Golfing Method Based on Feature Fusion and Kalman Filter Zhuang Zhang, Liwei Hou, Hengsheng Wang	231 G4448
Research of a Fast and Accurate Algorithm for Workpiece Recognition Jinghua Liu, Peisi Zhong, Wei Ni	240 G4449
Research on Reliability Modeling and Evaluation Method of Smart Meter Fuli Yang, Xingzhe Hou, Guangze Pan, Qin Luo, Chuangmian Huang	244 HE152
Real-time Scheduling Algorithm for the Multicast and Broadcast Service Min Wang, Qiaoyun Sun, Shuguang Zhang, Yu Zhang	249 HE155
An Advanced Probe System Designed for GCT-Like Device Test Wenpeng Zhou, Zhanqing Yu, Jiapeng Liu, Rong Zeng, Weijia Yang, Gang Lyu, Chaoqun Xu	N/A HGT152
Graphical IMC-PID Tuning Based on Maximum Sensitivity for Fractional-order Uncertain Systems Minghui Chu, Chi Xu, Jizheng Chu	<sup>2</sup> 57 IC218
Scheme Design and key Technologies of Quality Monitoring for Bearing Ring Groove Grinding Hou Zhi, Zeng Jie	N/A IC222
Image Super-resolution Reconstruction Algorithm Based on Convolutional Neural Network He Jingxuan, Zhang Jian, Zhang Yonghui, Wang Rong	267 IC227
Progressive Refinement Bilateral Filter Chanyi Lu, Yong Zhao, Lin Wang, Guiying Zhang, Fujian Feng, Li Zhang	272 IC236
Simple and Low Complexity GD-HL Detector for OFDM-IM Xiaoping Jin, Zheng Guo, Ning Jin, Liang Li	278 IC237

Graphical PID Controller Tuning Method for Parameter Uncertain System Minghui Chu, Jizheng Chu, Chi Xu	283 IC240
Modulation Strategy of the Input Stage for Solid State Transformer Based on Modular Multilevel Xiangming Wang, Liyang Cao, Jing Meng	289 IC243
Exemplar-based Inpainting under Boundary Contraction Constraints Xuehui Bi, Huaming Liu, Guanming Lu, Xiuyou Wang, Jian Wei, Yan Chao	<sup>2</sup> 95 IC <sub>2</sub> 53
Comprehensive Evaluation of Aero-engine Performance Based on Chaotic Artificial Fish-swarm Optimization Algorithm Zhou Yijiao, Fu Lingyun, Guo Jilian, Jiang Yucheng	301 ICCI101
Research on Fault Diagnosis of Rotating Machinery Based on Quantum Neural Network Wang Yun	306 ICCI107
Research on Combination Network Traffic Forecasting Model Yingkang Wang, Yuran Liu, Yufang Gan	311 MAE630
Research on Noise Source Location of 110KV Outdoor Substation Based on Acoustic Array Xuan Cai, Yong Cai, Xuelei Zhan, Caigeng Peng, Ling Lv	315 MAE632
Brain-actuated Humanoid Robot based on Brain-computer Interface (BCI) Jun Jiang, Boxin Zhao, Peng Zhang, Yang Bai, Xiaolong Chen	319 MAE635
An Information Fusion Positioning Algorithm Based on Extended Dempster-Shafer Evidence Theory Lu Bai, Chenglie Du, Jinchao Chen	N/A MAE640
Deep Learning Model for Function Point Based Software Cost Estimation Ming Qin, Lianteng Shen, Dahua Zhang, Liujun Zhao	N/A MAE641
Level Set Method for Image Segmentation in the Presence of Intensity Inhomogeneity and Noise Guopeng Huang, Hongbing Ji, Wenbo Zhang, Zhigang Zhu	334 MIS131
Action Recognition Based on Dense Trajectories and Human Detection Fei Xue, Hongbing Ji, Wenbo Zhang, Yi Cao	340 MIS132
Seamless Shore Power Connection Circulating Current and f/P Control Leming Xiao, Zhangde Wu	N/A WSIo81
Off-ramp on Boundary of Totally Asymmetric Simple Exclusion Process with Different Hopping Rates Song Xiao, Xiaoyu Chen, Ruquan Liang, Jianhui Shi, Yanna Liu	350 WSI082

A New Method to Evaluate and Predict the Load Capacity of Transformer in Energy Internet with Data Mining Algorithm Yingjie Li, Zhining Lv, Ning Pang, Gen Zhao, Yi Luo, Jun Hu	N/A WSIo84
Simulation of High Voltage Porcelain Bushing under Complicated Working Conditions	361
Shuhua Yao, Jianli Zhao, Xiao Yang, Jun Hu	WSI088
Cable Safety Detection Based on Improved Entropy Weight Method	365
Shizhong Liu, Ruiguang Liang, Guangyu Zhu, Pengfei Lv, Xu Zhang, Xiaoning Zhang	WSl091
Research on Intelligent Assembly Bicycle System Based on Virtual Reality	N/A
Shi Qiuyu, Zhu Wenhua, Cai Bao, Sun Zhangchi	ZIC130
Optimization and Analysis of Simultaneous Wireless Information and Power Transmission for LEO Satellite Chunfeng Wang, Naijin Liu	375 ZIC137
Harmonic Magnetic Field Analysis based on UHVDC Smoothing Reactor	N/A
Shayan Gong, Zhiyu Chen, Tingting Li, Chong Gao, Jianhui Zhou	ZIC151