

3rd International Conference on Electronics, Electrical Engineering and Information Science (EEEIS 2017)

Advances in Engineering Research Volume 131

Guangzhou, China
8 – 10 September 2017

Editor:

King Sing Cheung

ISBN: 978-1-5108-4982-2

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.

Copyright© (2017) by Atlantis Press
All rights reserved.
<http://www.atlantis-press.com/php/pub.php?publication=eeeis-17>

Printed by Curran Associates, Inc. (2017)

For permission requests, please contact the publisher:

Atlantis Press
Amsterdam / Paris

Email: contact@atlantis-press.com

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

ELECTRO-TECHNOLOGIES, ELECTRICAL AND MECHANICAL SYSTEMS

THE DESIGN AND REALIZATION OF A ROTARY INVERTED PENDULUM BASED ON EFFICIENT CONTROL	1
<i>Zhi-Yu Zhao, Gang Du, Yun-Tao Gou, Jun Li</i>	
GREEN PACKAGING DESIGN AND FINITE ELEMENT ANALYSIS OF LCD BUFFERING CUSHION	10
<i>Shui-Gen Lu, Jing Dong, Tian Zhou, Feng Liu, Shuai Xu</i>	
ANALYSIS OF AERODYNAMIC PERFORMANCE OF TESLA MODEL S BY CFD	16
<i>Qi-Liang Wang, Zheng Wu, Xian-Liang Zhu, Li-Li Liu, Ying-Chao Zhang</i>	
THE DEVELOPMENT AND CURRENT STATUS OF FRACTURE MECHANICS	22
<i>Ting-Ting Li, Li-Jun Ou-Yang, Bin Zhen</i>	
INTELLIGENT WELD OF WELDING ROBOT	27
<i>Wei Fu, Xiao-Gang Li, Hao Ma, Xiao-Lan Wang</i>	
CAN BUS MODULE AND WIPER MOTOR COMPATIBILITY ISSUES RESEARCH AND ANALYSIS	32
<i>Shao-Feng Li, Shan-Hu Yu, Xiao-An Liu, Xiao-Ming Wang</i>	
PRUNING AND SUMMARIZING THE DISCOVERED TIME SERIES ASSOCIATION RULES FROM MECHANICAL SENSOR DATA	40
<i>Qing Yang, Shao-Yu Wang, Ting-Ting Zhang</i>	

AUTOMATION AND CONTROL SYSTEMS

CONTROLLING CHAOS IN A DUAL-RING ERBIUM-DOPED FIBER LASER BY MODULATING THE PUMP	46
<i>Sen-Lin Yan</i>	
MODELING AND SIMULATION RESEARCH OF DRIVING FORCE GENERATION SPEED CONTROL SYSTEM	51
<i>Wei Wang, Yu-Heng Fan, Jian-Feng Wang, Chu-Feng Rao, Ze-Hao Pang</i>	
AN ADAPTIVE INTERACTING MULTIPLE MODEL ALGORITHM FOR MANEUVERING TARGETS TRACKING	58
<i>Shu-Liang Wang, Da-Ping Bi, Ming-Yang Du</i>	
DESIGN OF HIGH PRECISION LIGHTING CONTROL SYSTEM FOR MACHINE VISION IMAGE ACQUISITION	66
<i>Kai-Peng Yu, Ji-Ye Huang, Shuang Wu</i>	
DESIGN AND IMPLEMENTATION OF CONTROL SOFTWARE BASED ON LINUX AND QT FOR ELECTRIC ENERGY METER CALIBRATION DEVICE	74
<i>Lei Luo, Zhi-Wei He, Jie Wang</i>	
A TWO-STAGE COORDINATED STRATEGY FOR INTEGRATED EXPLORATION OF MULTI-ROBOT SYSTEMS	79
<i>Xue-Feng Dai, Lai-Hao Jiang</i>	
SCALABILITY OF OPENFOAM FOR VISCOELASTIC SOLVER ON HIGH PERFORMANCE SYSTEMS	85
<i>Gang Huang, Can-Qun Yang, Xiao-Wei Guo, Cheng-Kun Wu, Xiang Zhang</i>	
DEVELOPMENT OF DISPATCHING AUTOMATION TIME SYNCHRONIZATION MANAGEMENT MODULE BASED ON VXWORKS EMBEDDED DEVICE	92
<i>Chun-Bing Jiang</i>	
DESIGN AND IMPLEMENTATION OF DATA CLOUD PLATFORM FOR CNC SYSTEM	103
<i>Sheng-Yang Shi, Wen-Zhong Tang, Ji-Qiang Xia, Lian-Sheng Gao, Yan-Yang Wang</i>	

POWER ELECTRONICS AND SYSTEMS

MODELING AND CONTROL OF SINGLE-PHASE LCL-TYPE GRID-CONNECTED INVERTER IN DISCRETE DOMAIN	112
<i>Jing-Hua Zhou, Qi-Hang Wang, Ya-Ai Chen, Xiao-Wei Zhang</i>	

RESEARCH OF PHASE-SHIFT ANGLE ON THE DIFFERENTIAL DELTA AUTO-CONNECTED TRANSFORMER	118
<i>Jia-Rong Wang, Xiao-Qiang Chen, Qi-Yao Li, Ying Wang</i>	
THE RESEARCH OF THE DETECTING SYSTEM FOR THE BATTERY CYCLE LIFE OF THE TRAIN	128
<i>Jian-Gang Cao, Jian Feng</i>	
EFFICIENCY ANALYSIS AND OPTIMIZATION OF FOUR COIL MAGNETIC RESONANCE WIRELESS POWER TRANSMISSION SYSTEM	134
<i>Qiang Li, Zhi-Ren Zhang, Jian-Qiao Ye, Wei Gu</i>	
STUDY OF THE ELECTRONIC CURRENT TRANSFORMER'S ADDITIONAL ERROR TESTING	143
<i>Chun-Yan Yang, Deng-Yun Li, Hao-Liang Hu, Hui Peng, Li Yao, Tao Xu</i>	
LVRT STRATEGY -BASED MULTI-CONTROLLER SWITCHING FOR DFIG	150
<i>Shi-Hong Gao, Cheng-Xiong Mao, Dan Wang</i>	
RESEARCH ON FAULT WARNING OF DOUBLY FED WIND POWER GENERATOR BASED ON LS-SVM	158
<i>Sheng-Yu Niu, Bo-Wen Liu, Xin-Yan Zhang</i>	
THE RESEARCH ON POWER GRID SELF-HEALING IN A HIGH-VOLTAGE SMART GRID	164
<i>Guang-Liang Yang, Jing Zhou, Yong Wang</i>	
EXPERIMENTAL STUDY ON THE INFLUENCE OF PULSE LOAD ON MICRO - GRID OPERATING CHARACTERISTICS	172
<i>Chuang Lv, Pu Xie, Zhi-Yong Yin</i>	

POWER AND ENERGY MANAGEMENT

OUTAGE CAPACITY AND ENERGY EFFICIENCY TRADE-OFF FOR DISTRIBUTED MIMO SYSTEMS	177
<i>Zi-Hao Li, Gong-Bin Qian, Chun-Long He, Xing-Quan Li, Ce Zhang</i>	
A SURVEY OF CONTROL STRATEDY BASED ON CASCADED H-BRIDGE POWER CONVERSION SYSTEM	184
<i>Jing-Hua Zhou, Xiang Ji, Xiao-Wei Zhang, Ya-Ai Chen</i>	
PROSPECTIVE ESTIMATION OF THE SCALES AND SUBSIDIES OF CHINA'S OFFSHORE WIND POWER BEFORE 2020	193
<i>Tong Xu, Jia-Song Luo, Xue-Qin Tian, Chong-Ming Song, Xin-Lei Wang, Jing Yan</i>	
RESEARCH ON ENERGY MANAGEMENT STRATEGY OF CONNECTING AND OFF-GRID CHARGING STATION WITH PHOTOVOLTAIC AND STORAGE SYSTEM	208
<i>Xiao-Yu Zhang, Shou-Xin Gu</i>	
RESEARCH ON AUTOMATION DESIGN OF POWER SUPPLY SCHEME FOR INDUSTRY EXPANSION BASED ON MARKING AND POWER DISTRIBUTION SHARING AND GIS INFORMATION	217
<i>Mao-Yi Fang, Zhi-Jie Sun, Feng Xie, Xin-Nan Zhou, Yi-Ning Niu, Jian-Wei Jia, Ya-Min Sun</i>	
AN EMPIRICAL ANALYSIS OF ASSET MANAGEMENT PERFORMANCE EVALUATION MODEL FOR POWER GRID ENTERPRISES	228
<i>Jia-Xu Cheng, Ying-Hui Han, Jin-Dong Wang</i>	
RESEARCH ON FINANCIAL MANAGEMENT INFORMATION CONSTRUCTION OF ELECTRIC POWER ENTERPRISES IN CHINA	234
<i>Qi Jiang, Wei Hao, Jing Jia</i>	
STUDY ON ALGORITHMS OF POWER LINE EXTRACTION BASED ON POWER LINE IMAGE FEATURE	240
<i>Wen-Yu Wang, Yuan-Jing Liu, Le Zhao, Xian-Pei Wang</i>	

COMMUNICATION SYSTEMS AND NETWORK

DESIGN OF A VIDEO DATA TRANSMISSION SYSTEM BASED ON WIRELESS MESH NETWORK	245
<i>Liu-Qing Yang, Guo-An Zhang</i>	
A SURVEY ON UNDERWATER LOCALIZATION, LOCALIZATION TECHNIQUES AND ITS ALGORITHMS	252
<i>Inam Ullah, Ming-Sheng Gao, Mian Muhammad Kamal, Zubair Khan</i>	

RESEARCH ON PROGRAMMABLE DATA PLANE LOAD BALANCING BASED ON MULTIPATH SELECTION	260
<i>Li-Qiong He, Ling Ou</i>	
USING COMBINED MODEL APPROACH FOR CHURN PREDICTION IN TELECOMMUNICATION	269
<i>Fa-Gui Liu, Zhi-Jie Zhang, Xin Yang</i>	
MONITORING OF TRANSMISSION LINE WILDFIRES USING SATELLITE REMOTE SENSING	277
<i>Xiao-Ran Yi, En-Zhe Zhou, Li Ye, Shuang-Yu Du, Zhan-Qing Yu</i>	
RESEARCH ON UWB PRECISE INDOOR POSITIONING IN SHIP BASED ON INTUITIONISTIC FUZZY	285
<i>Kun Zhang, Chong Shen, Qian Gao, Hai-Feng Wang, Yu-Fei Wang</i>	
RESEARCH ON MULTI-STOREY INDOOR WIFI POSITIONING ALGORITHM BASED ON IMAGE RECOGNITION	292
<i>Hao Ding, Lei Wang, Ya-Nan Liu, Jing-Qi Deng, Ming-Jun Zhao</i>	
CHANNEL ESTIMATION ALGORITHM FOR MMWAVE COMMUNICATION WITH ARRAY ANTENNAS VIA REDUCED-DIMENSION MUSIC	299
<i>Wei-Tao Liu, Zhong-Xi Xia, Qian-Lin Cheng, Dong-Lin Yang, Xiao-Fei Zhang</i>	
THE STUDY ON THE MODEL OF EFFECTIVE FACE RETRIEVAL IN PEDESTRIAN DETECTION	306
<i>Hua-Yang Li, Pan-Pan Xia, Hui-Lian Xu</i>	
BIG FLOW COLLISION AVOIDANCE STRATEGY FOR LOAD BALANCING IN SDN	313
<i>Bin Luo, Jing Shen, Li-Qian Sun</i>	
DESIGN OF MINIATURIZED ULTRA WIDEBAND MICROSTRIP ANTENNA FED BY COPLANAR WAVEGUIDE	319
<i>Wei Ding, Dong-Sheng Wu, Lan-Lan Ping, Jing Zhang, Wen-Li Liang</i>	

SIGNAL AND IMAGE PROCESSING

AIR QUALITY PREDICTION OF POLLUTION SOURCES BASED ON WAVELET NEURAL NETWORK	324
<i>Hong-Da Ji, Li Yang, Yan-Feng Wang, Xiu-Bin Dai, Jun Wang</i>	
PULSE MODULATION METHOD TO DECREASE THE BLIND ZONE IN ULTRA-WIDEBAND PULSE COMPRESSION RADAR SYSTEMS	329
<i>Zhao-Xia Zhang, Xiao-Peng Ma, Ling-Zhen Yang, Juan-Fen Wang, Ping-Ping Xue</i>	
3D NEAR-FIELD SOURCE LOCALIZATION FOR CROSS ARRAY VIA FOURTH-ORDER CUMULANT	338
<i>Zhong-Xi Xia, Hao-Yu Yang, Wei-Tao Liu, Qian-Lin Cheng, Xiao-Fei Zhang</i>	
SIMULATION OF DETECTION EFFECTIVENESS OF AIRBORNE EARLY WARNING RADAR	346
<i>Hong-Tu Xie, Shao-Ying Shi, Fu-Hai Li, Dao-Xiang An, Guang-Xue Wang, Jia-Lin Su, Xiao-Tao Huang, Zhi-Min Zhou</i>	
STUDY ON DETECTION OF P300 ERP COMPONENT IN EEG SIGNALS AND ALGORITHMS	353
<i>Syed Kamran Haider, Ai-Min Jiang, Shahzad Ashraf, Inam Ullah</i>	
EXPERIMENTAL STUDY ON THE MEASURING TEMPERATURE FIELD BY REAL-TIME DIGITAL HOLOGRAPHY	360
<i>Zhan-Rong Zhou, Xiao-Fang Shen, Ai-Jun Li</i>	
ANALYSIS OF SLEEP SIGNALS BASED ON PERMUTATION SYMBOLIC TRANSFER ENTROPY	365
<i>Jun Min, Jun Wang</i>	
STUDY ON IMAGE RECOGNITION BASED ON STACKED SPARSE AUTO-ENCODER	372
<i>Gui-Ming Cao, Xiang -Qian Ding, Hui -Li Gong</i>	
ANALYSIS OF EPILEPTIC AND NORMAL EEG SIGNALS BASED ON RANDOM WALK	379
<i>Jun Min, Jun Wang</i>	
IMAGE EDGE DETECTION ALGORITHM BASED ON INTERPOLATION WAVELET DECOMPOSITION	385
<i>Zhi-Guo Zhang, Xi Zheng, Li Li</i>	

SYSTEM MODELLING, SIMULATION AND ALGORITHM

TELEPHONE TRAFFIC FORECASTING OF ELECTRIC SYSTEM BASED ON MULTI-FACTOR DECOMPOSITION	394
<i>Bo Hu, Xiao-Ling Ren, Cai-Jun Zhang, Hua-Qin Qin, Chong-Hui Guo</i>	
AN IMPROVED RELAY PROTECTION SIMULATION METHOD - DIRECTION DISTANCE METHOD	403
<i>Feng Gao, Dong-Hai Kuang, Xi-Lan Zhao</i>	
RESEARCH ON SIMULATION METHOD OF PROTECTION SYSTEM FOR UHVDC TRAINING SYSTEM	409
<i>Ke-Yuan Qin, Wu-Guang Tan, Qin Song, Bing Li, Qi-Zhen Sun</i>	
DESIGN AND IMPLEMENTATION OF SIMULATION SYSTEM FOR SAFETY ACCIDENT CASE BASED ON IMMERSIVE VIRTUAL REALITY TECHNOLOGY	416
<i>De-Gang Zhang, Ze-He Li, Yan-Wei Xiao, Long Jiang, Da-Da Wang, Guo-Ping Wang</i>	
HEURISTIC PATHFINDING ALGORITHM BASED ON DIJKSTRA	421
<i>Yan-Jiang Sun, Xiang-Qian Ding, Lei-Na Jiang</i>	
THE AUTOMATIC DETECTION OF HYPERNASALITY IN CLEFT PALATE SPEECH BASED ON AN IMPROVED CEPSTRUM METHOD	426
<i>Fang-Ling Fu, Jia-Hui Qian, Fei He, Heng Yin, Xi-Yue Wang, Ling He</i>	
THE ANALYSIS OF THE CANNON GUN TUBE WEARING LIFE BASED ON RANDOM USING CONDITION	431
<i>Tian-Xiao Cui, Jie Li, Guang-Sheng Liu, Chang-Zhi Jia</i>	
DYNAMICS SIMULATION OF 6-DOF ASSEMBLING MANIPULATOR BASED ON ADAMS	437
<i>Wei Wang, Xin Zou, Peng-Xiong Lin</i>	
THE SIMULATED ANALYSIS ON SHOOTING STABILITY OF VEHICLE ARTILLERY CONSIDERING SOIL PROPERTIES	443
<i>Jie Li</i>	
THE ANALYSIS OF THE CABLE CRANE IN THE LARGE SPAN BRIDGE	449
<i>Zhou Li, Niu-Jing Ma, Yuan-Cheng Wei</i>	

INFORMATION MANAGEMENT, SYSTEMS AND SECURITY

ALGORITHM OF EMBEDDED FILE SYSTEM IN INDUSTRIAL STORAGE MANAGEMENT	453
<i>Hui-Zhong Liu</i>	
BIO-SPECKLE METHOD FOR GARDEN PEA SEED NONDESTRUCTIVE CLASSIFICATION	458
<i>Yong-Zhen Kang, Ying-Qi Zhao, Lin Shao, Lei Yan, Jiang Xiao</i>	
THREE-DIMENSIONAL SOFTWARE PROFESSIONAL SKILL TRAINING OF MECHANICAL MAJORS BASED ON WITKEY AND PROJECT-DRIVEN TEACHING METHOD	463
<i>Jian-Wen Guo, Xiao-Chang Cao, Chu-Diao Huang, Li Xie, Jian-Jun Jin</i>	
A METHOD FOR IMPROVING THE ATTITUDE CALCULATION'S FAULT TOLERANCE RATE BY USING HARDWARE + SOFTWARE	467
<i>Hong Zhai, Xing-Qian Li, Ling-Yu Chen, Yun-Long Zhu, Hong-Wei Zhao</i>	
GEOMETRIC VISUALIZATION INTERACTION SYSTEM BASED ON AUGMENTED REALITY	473
<i>Feng Han, Xing-Qian Li, Jian-Jun Wang, Guan-Long Qu</i>	
REALIZATION OF CROSS - PLATFORM MINORITY LANGUAGE TRANSLATION SYSTEM BASED ON H5	479
<i>Xiao-Kang Xia, Jun Zhang, Wei Xiang</i>	
THE METHOD FOR DISCOVERING TECHNOLOGY COMPETITOR GROUPS BASED ON GRAPH CLUSTERING	484
<i>Yong-Sheng Yu, Hong-Qi Han, Zhong Li</i>	
RELEVANCE IDENTIFICATION OF CHINESE NEWS IN THE NEW MEDIA ENVIRONMENT-TAKING "SHANDONG VACCINE EVENT" AS AN EXAMPLE	490
<i>Le Song, Ming-Chun Zheng</i>	
A STUDY ON CLASSIFICATION OF FRUIT TYPE AND FRUIT DISEASE	496
<i>Meng-Meng Yang, Rikuto Kichida</i>	
DESIGN OF WEB BASED INFORMATION SYSTEM ORIENTED TO UNIVERSITY SCIENCE RESEARCH PROJECT	501
<i>Xiao Chen, Bo Jiang, Wei Hao, Qi Jiang</i>	

KNOWLEDGE DISCOVERY AND DATA MINING

**EXTRACTING ATTRIBUTE WORDS FOR DOMAIN ENTITY KNOWLEDGE BASE
CONSTRUCTION..... 507**
Hong-Lin Wu, Ruo-Yi Zhou, Ke Wang

THE GAME THEORY IN DEVELOPMENT OF INTERNET OF THINGS 511
Kai Ma

**THE RESEARCH AND DESIGN OF BIG DATA TRADING PLATFORM FOR ENTITY
BUSINESS..... 519**
Qian-Ying Zou, Lan Luo

**RESEARCH ON SPARE PARTS MANAGEMENT SYSTEM OF CONVERTER SUBSTATION
BASED ON INTERNET OF THINGS 525**
Jian-Xin Gu, Di Dai, Yan-Wen Wang, Hao Peng, Yu-Ting Fu

**A MULTILEVEL DEEP LEARNING METHOD FOR DATA FUSION AND ANOMALY
DETECTION OF POWER BIG DATA 533**
Dong-Lan Liu, Xin Liu, Hao Yu, Wen-Ting Wang, Xiao-Hong Zhao, Jian-Fei Chen

**RESEARCH ON ELECTRIC POWER INFORMATION SYSTEMS NETWORK SECURITY
SITUATION AWARENESS BASED ON BIG DATA TECHNOLOGY..... 540**
Dong-Lan Liu, Dong Li, Lei Ma, Xin Liu, Hao Yu, Ying-Xian Chang, Jian-Fei Chen

RESEARCH ON CHINESE SEMANTIC ROLE LABELING BASED ON OCEAN BIG DATA 548
Lei-Na Jiang, Yun-Tao Qian, Yan-Jiang Sun

USING THE HASHCHAIN TO IMPROVE THE SECURITY OF THE HADOOP 554
Ying Mei

Author Index