

# **International Conference on Intelligent Computing and Cognitive Informatics 2015 (ICICCI 2015)**

Advances in Intelligent Systems Research Volume 116

Singapore  
8 – 9 September 2015

**Editor:**

**W. Deng**

ISBN: 978-1-5108-1349-6

**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© (2015) by Atlantis Press  
All rights reserved.  
<http://www.atlantis-press.com/php/pub.php?publication=icicci-15>

Printed by Curran Associates, Inc. (2015)

For permission requests, please contact Atlantis Press  
at the address below.

Atlantis Press  
29 avenue Laumière  
75019 Paris  
France

[contact@atlantispress.com](mailto:contact@atlantispress.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: 845-758-2634  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

## CHAPTER 1: INTELLIGENT COMPUTING

<b>MRI IMAGE SEGMENTATION BASED ON A GPU SHORTEST PATH ALGORITHM</b> .....	1
<i>Jie Wang, Weihao Chen</i>	
<b>GAUSSIAN MIXTURE UNSCENTED PARTICLE FILTER WITH ADAPTIVE RESIDUAL RESAMPLE FOR NONLINEAR MODEL</b> .....	5
<i>Na Zhang, Xinxin Yang</i>	
<b>IMPROVED PARTICLE OPTIMIZATION ALGORITHM SOLVING HADOOP TASK SCHEDULING PROBLEM</b> .....	11
<i>Jun Xu, Yong Tang</i>	
<b>UNSUPERVISED PREDICTION OF CHANNEL STATE FOR COGNITIVE RADIO USING HIDDEN MARKOV MODEL</b> .....	15
<i>Honghao Wei, Yunfeng Jia, Lin Qiu, Yishuai Zhu</i>	
<b>RESEARCH OF HIGH-SPEED CIRCUIT POWER-GROUND PLANE MODELING ON THE BASIS OF VECTOR FITTING ALGORITHM</b> .....	21
<i>Lin Qiu, Yunfeng Jia, Honghao Wei, Yishuai Zhu</i>	
<b>NUMERICAL MODELING OF VEHICLES CONVOY AERODYNAMICS</b> .....	25
<i>Lilia Kataeva, Natalia Loschilova, Dmitry Maslennikov, Anton Tumasov</i>	
<b>AN IMPROVED METHOD OF COMPUTING CHINESE SENTENCE SIMILARITY</b> .....	29
<i>Lu Wang, Zhongshi He</i>	
<b>A ZERO-WATERMARKING ALGORITHM OF SVG VECTOR MAP BASED ON STROKE-WIDTH CHARACTERISTIC</b> .....	34
<i>Lin Zhou, Ying Huang, Zhanlong Chen, Xin Li</i>	
<b>A METHOD TO IMPROVE THE AVAILABILITY OF UNMANNED AERIAL VEHICLE CLUSTER</b> .....	38
<i>Ruibin Ouyang, Qingzhong Jia</i>	
<b>A STUDY OF FUZZY QUANTITATIVE ITEMS BASED ON WEIGHTED ASSOCIATION RULES MINING</b> .....	42
<i>Tianqi Yang, Chengjun Li</i>	
<b>AN ACO-BASED ALGORITHM FOR SOLVING PATH PLANNING PROBLEM OF CYCLIC GOODS-TAKING</b> .....	47
<i>Yikui Mo, Cheng Gong, Shen Lv</i>	
<b>A CENTRALIZED SYSTEM FOR MANAGING, ARCHIVING AND SERVING SCIENTIFIC DATA IN ECOHYDROLOGICAL RESEARCH</b> .....	51
<i>Mutao Huang, Yong Tian</i>	
<b>THE FAST COMPUTATION METHODS FOR EXTREME LEARNING MACHINE</b> .....	55
<i>Tao Dou, Xu Zhou</i>	
<b>DEVELOPMENT AND VALIDATION OF AIRCRAFT ICING COMPUTATIONAL SIMULATION CODE</b> .....	62
<i>Chengxiang Zhu, Chunling Zhu, Tao Guo, Lei Liu</i>	
<b>LITTLEC.JS: A LIGHTWEIGHT, MINIMAL, EXTENSIBLE, AND EMBEDDABLE JAVASCRIPT IMPLEMENTATION OF THE C PROGRAMMING LANGUAGE</b> .....	67
<i>Stefano Federici</i>	
<b>THE LOCATION AND EVALUATION OF GROSS ERROR BASED ON THE PARTLY LEAST SQUARE RIDGE ESTIMATION</b> .....	72
<i>Cheng Zhang, Lihong Jin, Yuting Lv</i>	

## CHAPTER 2: COGNITIVE INFORMATICS

<b>KERNEL DENSITY ESTIMATION METHOD BASING ON COLOR AND MOTION FEATURES FRAME FOR MOVING OBJECT DETECTION</b> .....	77
<i>Yu Guo, Ziqiang Shen</i>	
<b>INTRUSION PERCEPTION TECHNOLOGY OF THE SCADA SYSTEM OF OIL AND GAS GATHERING AND TRANSPORTING BASED ON FNN</b> .....	82
<i>Yang Fan, Xiedong Cao</i>	

<b>EXPLORATION AND RESEARCH ON OIL AND GAS SCADA SECURITY DEFENSE BASED ON DYNAMIC FUZZY NEURAL NETWORK (DFNN).....</b>	<b>86</b>
<i>Menghui Zhao, Xiedong Cao</i>	
<b>CLOUD DETECTION OF GRAY PHOTOGRAPHS BY CLOUD REGION DETECTION AND OPTIMAL REGION GROW THRESHOLD .....</b>	<b>91</b>
<i>Xingying Zhao, Hong Zheng</i>	
<b>QUANTUM STRUCTURE MODEL OF JUDGEMENT IN BATTLESPACE.....</b>	<b>96</b>
<i>Zhihua Song, Han Zhang, Wanfang Che, Xiaobin Hui</i>	
<b>THE COMPARISON OF CLASSIC IMAGE RESIZING METHODS .....</b>	<b>101</b>
<i>Zijuan Zhang</i>	
<b>THE COMBINATION OF COLOR AND DEPTH INFORMATION FOR IMPORTANCE MAP .....</b>	<b>105</b>
<i>Yuhui He</i>	
<b>FEATURE VECTOR EXTRACTION IN HSV WITH BANDLET TRANSFORM .....</b>	<b>108</b>
<i>Ming Yang</i>	
<b>LIMITS OF GEOMETRICAL DISTORTIONS BASED ON SUBJECTIVE ASSESSMENT OF STEREOSCOPIC IMAGES .....</b>	<b>111</b>
<i>Xiangdong Deng, Guanwen Zheng, Xun Cao</i>	

### **CHAPTER 3: E-COMMERCE AND TRAINING**

<b>A RESEARCH ON CUSTOMER LOYALTY BASED ON THE NETWORK MARKETING .....</b>	<b>116</b>
<i>Wenhua Qiu</i>	
<b>ANALYSES ON STRATEGIES OF ENHANCING BRAND COMPETITIVENESS OF HUAWEI COMPANY .....</b>	<b>120</b>
<i>Jianchun Ke</i>	
<b>REVELATION OF SELF-ORGANIZING THEORY ON THE CONSTRUCTION OF E-TRAINING SYSTEMS .....</b>	<b>124</b>
<i>Xin Huang</i>	
<b>THE RESEARCH ON INTERNET-BASED PRACTICE TEACHING OF E-COMMERCE APPLIED UNDERGRADUATE TALENTS .....</b>	<b>127</b>
<i>Xianyong Meng, Yiqi Xiong, Xiangyu Meng, Zhengbo Wang</i>	
<b>HOW TO USE E-COMMERCE STRATEGY TO ADD VALUE FOR HOTEL INDUSTRY: A CASE STUDY OF 7 DAYS INN .....</b>	<b>131</b>
<i>Yiqi Xiong</i>	
<b>RELATIONSHIP AMONG BRAND IMAGE, SERVICE QUALITY AND CUSTOMER SATISFACTION – USING CHINA AIRLINE AS AN EXAMPLE .....</b>	<b>135</b>
<i>Feishuo Hung</i>	
<b>DIMENSIONS CONSTRUCTION OF INSTITUTIONAL NORMS FOR PLACE BRANDING .....</b>	<b>142</b>
<i>Weihong Zhao, Fan Zhang</i>	
<b>THE RESEARCH ON COLLABORATION CULTIVATION MECHANISM OF E-COMMERCE APPLIED UNDERGRADUATE TALENTS .....</b>	<b>146</b>
<i>Xianyong Meng, Yiqi Xiong, Xiangyu Meng, Zhengbo Wang</i>	
<b>A STUDY ON CUSTOMER RELATIONSHIP QUALITY AND CUSTOMER CITIZENSHIP BEHAVIOR — EVIDENCE FROM ONLINE SHOPPING BEHAVIOR OF COLLEGE STUDENTS .....</b>	<b>149</b>
<i>Xiangyu Meng, Guicheng Shi, Meng Xianyong, Zhengbo Wang</i>	
<b>AN EMPIRICAL STUDY OF SUPPLY CHAIN COLLABORATIVE KNOWLEDGE INNOVATION.....</b>	<b>153</b>
<i>Li Liu, Deqiang Zhong</i>	

### **CHAPTER 4: POWER SYSTEM AND ELECTRICAL ENGINEERING**

<b>ACTIVE EQUALIZATION FOR LITHIUM BATTERIES COMBINED CELL VOLTAGE WITH STATE OF CHARGE .....</b>	<b>157</b>
<i>Qinghe Liu, Tao Yang, Qingyang Xu, Lijun Zhao</i>	
<b>RESEARCH OF THE RELATIONSHIP BETWEEN PARTIAL DISCHARGE AND GAS DECOMPOSITION PRODUCTS IN SF6 INSULATED EQUIPMENT .....</b>	<b>162</b>
<i>Gang Lu, Yang Liu</i>	
<b>SINGLE PHASE D-Q THEORY BASED CONTROL OF DER INVERTERS FOR POWER QUALITY IMPROVEMENT .....</b>	<b>170</b>
<i>Lavina Shilpa Stanly, Anu P, Divya R, Manjula G</i>	

<b>RESEARCH ON POWER SUPPLY SERVICE UNDER NEW URBANIZATION AND BEAUTIFUL COUNTRISIDE CONSTRUCTION.....</b>	<b>177</b>
<i>Si Liu, Minxiang Huang, Xuhua Fu, Lei Wang, Chengjin Ye</i>	
<b>AN AGC ALLOCATION PARAMETER OPTIMIZATION METHOD CONSIDERING THE CHARACTERISTICS OF GENERATOR VALVE CONTROLLERS .....</b>	<b>181</b>
<i>Lu Li, Qiang Zhang, Chunyu Chen, Kun Yuan, Li Hao, Kaifeng Zhang, Qiang Guo, Xiaojiang Guo</i>	
<b>RESEARCH ON TRANSFORMER WINDING FAULT DETECTION METHOD BASED ON THE VOLTAGE AND CURRENT CHARACTERISTICS OF LISSAJOUS.....</b>	<b>187</b>
<i>Hui Xu, Guanchen Lu, Zhangqi Wang, Hong Yu, Guochao Qian, Zhongxi Lu</i>	
<b>RESEARCH ON COMPLEX MULTI-WINDOW HMI CONSTRUCTION TECHNOLOGY IN DISPATCHING AUTOMATION SYSTEM.....</b>	<b>191</b>
<i>Lin Zhao, Lingtao Zhang, Pai Sun, Bo Zhuang, Guopeng Wang, Yan Geng</i>	
<b>IMPACTS OF ELECTRIC VEHICLES ON THE RESIDENTIAL DISTRIBUTION NETWORK BASED ON THE TIME-OF-USE POWER PRICE AND INTELLIGENT CHARGING.....</b>	<b>196</b>
<i>Zhihua Zang, Yunpeng Liu, Ziqiang Xu, Lingming Meng, Yue Wang</i>	
<b>RESEARCH OF PORTABLE INSULATION DETECTING DEVICE WHICH BASED ON FOR ELECTRIC EQUIPMENT .....</b>	<b>202</b>
<i>Weizheng Zhang, Yujiang Wang, Guojian Ji, Yongbo Yang, Dengfeng Ju, Aihui Yin</i>	
<b>DESIGN AND SIMULATION OF OPTICAL CURRENT TRANSFORMER BASED ON MIXED PROGRAMMING OF ANSOFT AND VB .....</b>	<b>207</b>
<i>Linyang Chen, Qifeng Xu</i>	
<b>AUTO-TUNED PASSIVE FILTER USING ISIN CONTROLLER .....</b>	<b>212</b>
<i>Vinod Krishnan P. P, Jishnu Sankar V C, Manjula G. Nair</i>	
<b>MATCHING ANALYSIS OF OUTPUT POWER AND ELECTRICITY LOAD OF TYPICAL PV SYSTEM.....</b>	<b>220</b>
<i>Rui Hu, Xudong Xu, Yingjie Tian, Yifang Li</i>	
<b>SUMMARY ON REACTIVE POWER COMPENSATION TECHNOLOGY AND APPLICATION.....</b>	<b>225</b>
<i>Hong Hu, Wenmei Wu, Shaohua Xiao, Min Tan, Chuanjia Han</i>	
<b>CORRELATED EQUILIBRIUM Q-LEARNING FOR MULTI-OBJECTIVE REACTIVE POWER OPTIMIZATION CONSIDERING GRID SIDE CARBON EMISSIONS.....</b>	<b>230</b>
<i>Hong Hu, Wenmei Wu, Min Tan, Shaohua Xiao, Chuanjia Han</i>	
<b>THREE MODELS TO ANALYZE THE UNCERTAINTY OF BOILER EMISSION FLUE GAS HEAT LOSS.....</b>	<b>236</b>
<i>Jingxue An, Lei Wang, Jinwu Cheng, Youxin Li, Xuejiao Luo</i>	
<b>THE SPATIAL-TEMPORAL STATISTICAL ANALYSIS OF LIGHTNING BEHAVIOR OVER HAINAN ISLAND.....</b>	<b>241</b>
<i>Wensheng Gao, Ruixu Zhou, Bowen Zhang, Xianggan Fu, Qinzhu Chen, Song Huang, Yafeng Liang</i>	
<b>FACTORS OF DISTRIBUTED PHOTOVOLTAIC POWER GENERATION .....</b>	<b>247</b>
<i>Chunyan Ma, Shiyong Jiang, Ying Gong</i>	
<b>STUDY ON COMPREHENSIVE EVALUATION OF ENERGY SAVING INDEX SYSTEM IN PUMPED STORAGE POWER STATION BASED ON VERTICAL SCATTER DEGREE METHOD.....</b>	<b>250</b>
<i>Haiying Huang, Xi Hu, Haoping Chen, Xinghua Wang</i>	
<b>THE RESEARCH ON THE POWER EMERGENCY DATA EXCHANGE TECHNOLOGY.....</b>	<b>256</b>
<i>Weimei Zhao, Xiaofeng Qu, Yu Zhen</i>	