

2016 13th International Computer Conference on Wavelet Active Media Technology and Information Processing (ICCWAMTIP 2016)

**Chengdu, China
16-18 December 2016**



**IEEE Catalog Number: CFP16WAM-POD
ISBN: 978-1-5090-6127-3**

**Copyright © 2016 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:	CFP16WAM-POD
ISBN (Print-On-Demand):	978-1-5090-6127-3
ISBN (Online):	978-1-5090-6126-6

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

CURRAN ASSOCIATES INC.
proceedings
.com

Table of Contents

Content of Proceeding of 13th ICCWAMTIP	I
Keynotes Speech Abstracts.....	XIV

Content of Proceeding of 13th ICCWAMTIP

Track 01: Theory and Experiment

#01_01: MULTI-GROUP DOA ESTIMATION FOR NONCIRCULAR SOURCES IN MULTIPATH	1
DAWEI LUO ¹ , XU XU ¹ , YONG WANG ² , SAIFENG LI ¹ , ZHONGFU YE ¹	
¹ National Engineering Laboratory for Speech and language Information Processing, School of Information Science and Technology, University of Science and Technology of China, Hefei 230027, China	
² Science and Technology on Communication Information Security Control Laboratory, Jiaxing, 314033, China	
#01_02: NETWORK ANOMALY DETECTION AND LOCALIZATION	8
JIAQI WEI ¹ , QIANLI ZHANG ² , XING LI ³	
¹ Department of Electronic Engineering, Tsinghua University, Beijing 100084, China	
² Institute of Network Science and Cyberspace, Tsinghua University, Beijing 100084, China	
³ CERNET Center, Tsinghua University, Beijing 100084, China	
#01_03: PASSIVE MULTI-STATIC RADAR SYSTEM DETECTION WITH MULTI-PL E OPPORTUNISTIC SIGNALS	14
QIANG ZHANG ¹ , XU XU ¹ , SAIFENG LI ¹ , ZHONGFU YE ¹ , YONG WANG ²	
¹ Key Laboratory of Electromagnetic Space Information, Chinese Academy of Science, University of Science and Technology of China, Hefei, Anhui 230027, China	
² Science and Technology on Communication Information Security Control Laboratory, Jiaxing, 314033, China	
#01_04: LOW-DOSE COMPUTED TOMOGRAPHY SINOGRAM DE-NOISING BASED ON JOINT WAVELET AND TOTAL VARIATION	20
WEI ZHANG ^{1, 2} , YAN KANG ^{1,*}	
¹ Sino-Dutch Biomedical and Information Engineering School, Northeastern University, Shenyang 110169, China	
² Computer School, Jilin Normal University, Siping 136000, China	
#01_05: THE STUDY OF 3D SUPER-RESOLUTION GEOMETRIC MODELING BASED ON WAVELET ANALYSIS	24
SENHUA WANG, XIANGZHONG LI, PING WANG, YU LI, QIN CHEN	
Logistical Information and Military logistics Engineering Department, Logistical Engineering University	
#01_06: CHAOTIC IMAGE ENCRYPTION & IMAGE SHARING ALGORITHM RESEARCH BASED ON WAVELET TRANSFORM AND CRT	28
HUI BEN ZHANG, SHI MIN LIU, MIN GAO, JI YANG ZHU, MENG MENG ZHANG, RUI FAN	
State Grid East Inner Mongolia Information & Telecommunication Company, Huhehaote, 010020, China	
#01_07: ANSWER TRIGGERING OF FACTOID QUESTIONS: A COGNITIVE APPROACH	33
KINGSLEY N. ACHEAMPONG, ZHENHAO PAN, ERQIANG ZHOU, XIAOYU LI	
School of Information and Software Engineering, University of Electronic Science and Technology of China, Chengdu, China	

#01_08: EVOLVING SUPPORT VECTOR MACHINE USING MODIFIED FRUIT FLY OPTIMIZATION ALGORITHM AND GENETIC ALGORITHM FOR BINARY CLASSIFICATION PROBLEM	38
FEI YE ¹ , XINYUAN LOU ¹ , MIN HAN ²	
¹ School of information science and technology, Southwest Jiaotong University, Chengdu, 611756, China	
² School of software engineering, Chengdu University of Information Technology, Chengdu, 610000, China	
#01_09: TAG-BASED COLLABORATIVE FILTERING RECOMMENDATION ALGORITHM FOR TV PROGRAM	47
FULIAN YIN, XIAOWEI LIU, WANYING DING, RUIZHE ZHANG	
Communication University of China	
#01_10: A NOVEL METHOD FOR REAL-TIME GLOBALLY OPTIMIZED PATH PLANNING IN A DYNAMIC ENVIRONMENT BASED ON ANT COLONY SYSTEM ALGORITHM	53
QINGQUAN WU	
Extra High Voltage Transmission Company, China Southern Power Grid, Guangzhou 510000, PR China	
#01_11: A NOVEL PARALLEL RAY-CASTING ALGORITHM	59
YAN ZHANG, PENG GAO, XIAOQING LI	
Microelectronics Center, Shenzhen Graduate School, Harbin Institute of Technology, Shenzhen 518000, China	
#01_12: A NOVEL HYBRID ALGORITHM OF PERSONALIZED LINK PREDICTION	62
JUN WANG ^{1,2} , LINGJIAO CHEN ^{1,2} , XIAO YANG ^{1,2}	
¹ Web Sciences Center, University of Electronic Science and Technology of China, Chengdu, 611731, China	
² School of Information and Software Engineering, University of Electronic Science and Technology of China, 611731, Chengdu, China	
#01_13: A NOVEL IMAGE ENCRYPTION ALGORITHM BASED ON LOGISTIC AND HENON MAP	66
YAN JIANG ¹ , BO LI ²	
¹ Chongqing Energy Professional College, 400041.	
² Logistical Engineering University, Chongqing 401311, China.	
#01_14: SHORTEST PATH NETWORK INTERDICTION OF BI-LAYER NETWORKS WITH GOAL THRESHOLD	70
XIANGYU WEI, KAIMING XIAO, WEI DUAN	
College of Information System and Management National University of Defense Technology, Changsha 410072, China	
#01_15: INFORMATION FILTERING IA TRUST RELATIONSHIPS DIFFUSION PROCESS	76
LINGJIAO CHEN ^{1,2} , LEI GAO ^{1,2} , HUI YANG ^{1,2}	
¹ Web Sciences Center, University of Electronic Science and Technology of China, Chengdu 611731, People's Republic of China	
² Big Data Research Center, University of Electronic Science and Technology of China, Chengdu 611731, People's Republic of China	
#01_16: DEVICE-INDEPENDENT QUANTUM KEY DISTRIBUTION BASED ON NON-SIGNALING CONSTRAINTS	82
YAN CHANG ^{1,2} , CHUNXIANG XU ¹	
¹ Department of Computer Science and Technology, University of Electronic Science and Technology of China, Chengdu 611731, China	
² College of Information Security Engineering, Chengdu University of Information Technology, Chengdu 610225, China	

#01_17: NEW CLASS OF OPTIMAL FREQUENCY-HOPPING SEQUENCE BASED ON CYCLOTOMY PING HUANG Chengdu Neusoft University, Chengdu, 618201, China	86
#01_18: OPTIMIZATION OF OLSR ROUTING PROTOCOL IN UAV AD HOC NETWORK SIYU DONG Department of Information Engineering, Officers College of PAP, Chengdu, Sichuan 610213, China	90
#01_19: A COMPARISON OF LEARNING RULES IN PULSE-BASED NEURAL NETWORKS YONGPAN SHENG, YANGYANG WANG, LU WANG ² , GAO FENG ZHAO ¹ ¹ Department of Computer Science and Engineering, University of Electronic Science and Technology, Sichuan, China ² Network Information Center and Digital Campus Construction Office, Central University of Finance and Economics	95
#01_20: A SPIKING-TIMING-BASED MODEL FOR CLASSIFICATION BO YANG, YANGYANG WANG, JIANPING LI College of Computer Science and Engineering, University of Electronic Science and Technology of China, Chengdu 611731, China	99
#01_21: THE PRELIMINARY RESEARCH BASED ON DIFFERENTIAL EQUATION MODEL OF GENETIC REGULATORY NETWORK WEI SHEN, BAIYI AN College of Computer Science and Technology Beihua University Jilin, China College of Horticulture Jilin Agricultural University Changchun, China	103
#01_22: A ENERGY-ORIENTED DISTRIBUTED TDMA SCHEDULING ALGORITHM FOR WIRELESS SENSOR NETWORKS JUN ZENG ¹ , XIAO-TONG ZHANG ¹ , JING TANG ¹ , PENG WANG ¹ , HONGYING BAI ¹ , FUQIANG MA ¹ , XUAN ZHAO ² ¹ School of Computer and Communication Engineering, University of Science and Technology Beijing, Beijing 100083, China ² School of Mechanical Engineering, University of Science and Technology Beijing, Beijing 100083, China	107
#01_23: PIEZOELECTRIC SENSOR FOR MICRO MASS DETECTION YAN GAO, YING HONG, LINGUO YANG, JISHENG HU, YOUJIN HUANG, YANCHUN YAO, HENG LIU Department of Electrical Engineering, Anhui Vocational and Technical College, Hefei, Anhui, 230011, China	111
#01_24: REAL-TIME GLOBALLY OPTIMIZED PATH PLANNING IN A DYNAMIC ENVIRONMENT COMBINING ARTIFICIAL POTENTIAL FIELD AND FUZZY NEURAL NETWORK QINGQUAN WU, YINGJUN LU, XIANGQIANG LIU Extra High Voltage Transmission Company, China Southern Power Grid, Guangzhou 510000, PR China	114
#01_25: A NEW PILOT DESIGN CRITERION OF CHANNEL ESTIMATION BASED ON COMPRESSIVE SENSING JIANSHENG HU, ZUNXUN SONG School of Electronics and Information, Northwestern Polytechnical University, Xi'an, 710072, China	119
#01_26: ALGORITHM TO SOLVE TRAVEL SALESMAN PROBLEM EFFICIENTLY MUDASSIR KHALIL, JIANPING LI, YANGYANG WANG, ASIF KHAN School of Computer Science and Technology, University of Electronic Science and Technology of China	123

#01_27: APPLICATIONS OF WAVELET ANALYSIS TO CLOUD COMPUTING AND BIG DATA: STATUS AND PROSPECTS	127
HEJUN JIAO ^{1,2} , JIANPING LI ¹ , QUNLI ZHAO ² , JIAN LI ²	
¹ School of computer science and engineering, University of Electronic Science and Technology of China, Chengdu 611731, China	
² School of computer science, Henan Institute of Engineering, Zhengzhou 451191, China ^a	
#01_28: THE COMMUNITY DETECTION BASED ON SVM ALGORITHM	131
SHIKAI SUI ¹ , JIANPING LI ¹ , JIANGUO ZHANG ² , SHIJIE SUI ³	
¹ School of Computer Science and Engineering, University of Electronic and Technology of China, Chengdu 611731, China	
² Communication Engineering, Hangzhou Dianzi University, Hangzhou 310018, China	
³ Zhengzhou University of Light Industry, Zhengzhou 450000, China	
#01_29: RESEARCH ON THE ALGORITHM OF COMMUNITY DISCOVERY BASED ON THE STANDARD DEVIATION OF EDGE – BETWEENNESS	135
YANLING TANG, JIANPING LI, GAOFENG ZHAO, YANGYANG WANG	
School of Computer Science and Engineering, University of Electronic Science and Technology of China, Chengdu 611731, China	
#01_30: R-TEMPOTRON: A ROBUST TEMPOTRON LEARNING RULE FOR SPIKE TIMING-BASED DECISIONS	139
MALU ZHANG JIANPING LI YANGYANG WANG GUOMING GAO	
Department of Computer Science and Engineering, University of Electronic Science and Technology, Sichuan, China	
#01_31: THE RESEARCH ON THE ALGORITHM OF KEY NODES DETECTION IN SOCIAL NETWORK	143
GAOFENG ZHAO ¹ , JIANPING LI ¹ , YANLING TANG ¹ , YANGYANG WANG ¹ , JIANGUO ZHANG ²	
¹ School of Computer Science and Engineering, University of Electronic Science and Technology of China, Chengdu 611731, China	
² Communication Engineering, Hangzhou Dianzi University, Hangzhou 310018, China	
#01_32: FEATURE IDENTIFICATION OF UNKNOWN PROTOCOL	147
JIE ZHENG ^{1,2,*} , LI JIANPING ¹	
¹ School of Computer Science and Engineering, University of Electronic Science and Technology of China, Xiyuan Ave, Chengdu, China	
² Chongqing College of Electronic Engineering, Chongqing College Town, Chongqing, China	

Track 02: Multimedia Technology

#02_01: GATED FACTORED 3-WAY RBM FOR IMAGE TRANSFORMATION 150

XIA LEI¹, AMIT YADAV^{1,2}, DUOBIAO NING¹

¹Computer Science Department, Chengdu Neusoft University, Chengdu, China

²School of Management & Economics, University of Electronic Science & Technology of China, Chengdu, China

#02_02: DOMAIN ADAPTATION OF IMAGE CLASSIFICATION EXPLOITING TARGET ADAPTIVE COLLABORATIVE LOCAL-NEIGHBOR REPRESENTATION 154

SONG TANG¹, ZHIXIAN CHEN², LIJUAN CHEN^{3,*}, MAO YE¹

¹School of Computer Science & Engineering, University of Electronic Science and Technology of China, Chengdu 611731, China;

²Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen 518055, China;

³School of Mathematical Sciences, University of Electronic Science and Technology of China, Chengdu 611731, China.

#02_03: WAVELENGTH SELECTION FOR THE REAL-TIME DETECTION OF FEAR AFFECTION USING A HYPERSPECTRAL IMAGING TECHNIQUE 158

HANG ZHOU^{1,2}, TONG CHEN^{1,2,*}, GUANG-YUAN LIU^{1,2,*}

¹Chongqing Key Laboratory of Non-linear Circuits and Intelligent Information Processing, Southwest University, Chongqing, 400715, China

²School of Electronic and Information Engineering, Southwest University, Chongqing, 400715, China

#02_04: THE APPLICATION OF THE LANDSLIDES DETECTION METHOD BASED ON SAR IMAGES TO TRANSMISSION LINE CORRIDOR AREA 163

ZHIHANG XUE¹, SHIYU LUO², YAN CHEN², LING TONG²

¹Machine State Grid Electric Power Research Institute of Sichuan, Chengdu, China

²University of Electronic Science and Technology of China, Chengdu, China

#02_05: REAL-TIME VEHICLE DETECTION AND TRACKING USING DEEP NEURAL NETWORKS 167

XIAOFENG GU¹, ZIWEI CHEN¹, TINGSONG MA¹, FAN LI¹, LONG YAN²

¹International Centre for Wavelet Analysis and Its Applications, School of Information and Software Engineering, University of Electronic Science and Technology of China, Chengdu 611731

²State Grid Inner Shizuishan Power Supply Company, Shizuishan, 753000, China

#02_06: STUDY ON CITY RAINSTORM WATERLOGGING WARNING SYSTEM BASED ON HISTORICAL DATA 171

YANGYANG WANG¹, JIANPING LI¹, HUIBEN ZHANG²

¹School of Computer Science and Engineering, University of Electronic Science and Technology of China, Chengdu 611731, China

²State Grid East Inner Mongolia Information & Telecommunication Company, Huhehaote, 010020, China

#02_07: A PARALLEL COMPUTER CLUSTERS FOR CONVOLUTIONAL NETWORK 175

PING HUANG

Chengdu Neusoft University, Chengdu, 611830, China

#02_08: SPATIO-TEMPORAL MOTION ANALYSIS BASED SUSPICIOUS BEHAVIOR DETECTION	179
WANGBIN CHU ¹ , YEPENG GUAN ^{1,2}	
¹ School of Communication and Information Engineering, Shanghai University, Shanghai, China	
² Key Laboratory of Advanced Displays and System Application, Ministry of Education	
#02_09: THE RAPID PREDICTION OF PLAYING INDEX IN ACCUMULATION ON VIDEO WEBSITES	184
FULIAN YIN ¹ , XUESONG BAI ¹ , JIANPING CHAI ¹	
¹ College of Information Engineering, Communication University of China, Beijing 100024, China	
#02_10: PRIVACY PRESERVING IN DISTRIBUTED SVM DATA MINING OVER HORIZONTALLY PARTITIONED DATA	189
MOHAMMED Z. OMER, HUI GAO, NADIR MUSTAFA	
School of Computer Science and Engineering, UESTC, Chengdu 610054, China	
#02_11: DIFFERENTIAL PRIVACY FOR RECOMMENDATION MODEL BASED ON WEB BROWSING BEHAVIORS OF MOBILE USERS	195
ZHE DING ^{1,2} , ZHEN QIN ^{1,2} , ZHIGUANG QIN ^{1,2}	
¹ School of Information and Software Engineering, University of Electronic Science and Technology of China, Chengdu, 610054	
² Network and Data Security Key Laboratory of Sichuan Province, University of Electronic Science and Technology of China, Chengdu, 610054	
#02_12: ADD A TOPIC FEATURE TO LEARNING TO RANK MODEL	200
LI WAN ¹ , WEN YANG ¹	
¹ College of Computer Science, Chongqing University, Chongqing 400030, China	
#02_13: MR BRAIN IMAGES REGISTRATION WITH KERNEL LEARNING ON RIEMANNIAN MANIFOLD	204
WEI LIU ^{1,2,3} , LEITING CHEN ^{1,2} , XIN LI ^{1,2}	
¹ School of Computer Science and Engineering, University of Electronic Science and Technology of China, Chengdu 611731, China	
² Provincial Key Laboratory of Digital Media, Chengdu 611731, China	
³ Chengdu Vocational and Technical College of Industry, Chengdu 610218, China	
#02_14: CHAOS-BASED COLOR IMAGE ENCRYPTION AND COMPRESSION SCHEME USING DNA COMPLEMENTARY RULE AND CHINESE REMAINDER THEOREM	208
LONGYUAN GUO ¹ , JIANZHANG CHEN ^{*,2} , JIANPING LI ¹	
¹ School of Computer Science and Engineering, University of Electronic Science and Technology of China, Chengdu 611731, China	
² College of Computer and Information Sciences, Fujian Agriculture and Forestry University, Fuzhou350002, China	
#02_15: RESEARCH AND IMPLEMENTATION OF BLIND READER SYSTEM BASED ON ANDROID PLATFORM	213
JINGZHONG WANG, XIAOHUI GUO, KE XIAO	
College of Computer, North China University of Technology, Beijing, China	
#02_16: VIDEO SALIENCY FROM COMPRESSED DOMAIN CODING LENGTH	217
CHÜNYANG LIU ¹ , ZEMIN WU ¹ , ZHAOFENG ZHANG ¹ , QINGZHU JIANG ¹ , LEI HU ¹	
¹ College of Communications Engineering, PLA University of Science and Technology, Nanjing, 210007, China	

#02_17: AN IMPROVED SIMILARITY METRIC BASED ON JOINT BAYESIAN FOR FACE VERIFICATION	222
RUI YAN ¹ , ZUOFENG ZHONG ¹ , JIAN ZHANG ¹ , YONG XU ¹	
¹ Bio-Computing Research Center, Shenzhen Graduate School, Harbin Institute of Technology, Shenzhen, Guangdong 518055, China.	
#02_18: SHAPE RETRIEVAL USING DEEP AUTOENCODER LEARNING REPRESENTATION	227
GUOQING XU, WEIWEI FANG	
School of Computer and Information Engineering, Nanyang Institute of Technology, Nanyang 473004, China	
#02_19: A NONLINEAR DIFFUSION FOR SALT AND PEPPER NOISE REMOVAL	231
HONGYAO DENG ^{1,3} , QINGXIN ZHU ¹ , XIULI SONG ²	
¹ School of Information & Software Engineering, University of Electronic Science and Technology of China, China	
² School of Computer Science and Technology, Chongqing University of Posts and Telecommunications, China	
³ College of Computer Engineering, Yangtze Normal University, Chongqing, China	
#02_20: DEEP SPARSE AUTO-ENCODER FOR COMPUTER AIDED PULMONARY NODULES CT DIAGNOSIS	235
BIN SUN, CUNHUI MA, XINYU JIN, YE LUO	
College of Information Science & Electronic Engineering, Zhejiang University, Hangzhou 310058, China	
#02_21: SUMMARY OF THE RESEARCH ON MICRO-DOPPLER OF VEHICLE-BORNE RADAR MOVING TARGET	239
LEYING YUN, JUN LV, XI WANG, CHENG CHANG	
Academy of Armored Force Engineering, Department of Information Engineering, Beijing, 100072, China	
#02_22: UNEVEN ILLUMINATION REMOVAL BASED ON FULLY CONVOLUTIONAL NETWORK FOR DERMOSCOPY IMAGES	243
XIAOFENG MEI, FENG-YING XIE*, ZHIGUO JIANG	
Image Processing Center, School of Astronautics, Beihang University, Beijing 100191, China	
#02_23: DTI IMAGES SEGMENTATION BASED ON ADAPTIVE BANDWIDTH MEAN SHIFT ALGORITHM	248
BOWEN FANG, XIANGFEN ZHANG*, YAN MA, YUE HAN	
The College of Information, Mechanical and Electrical Engineering, SHNU, Shang Hai 200234, China	
#02_24: DWT BASED ENCRYPTION TECHNIQUE FOR MEDICAL IMAGES	252
JOSHUA CALEB DAGADU, JIANPING LI, FADIA SHAH, NADIR MUSTAFA, KAMLESH KUMAR	
International Centre for Wavelet Analysis and Its Applications, School of Computer Science and Engineering, University of Electronic Science and Technology of China, Chengdu, 611731, P. R. China	
#02_25: X-RAY IMAGE RELIABILITY USING BIORTHOGONAL WAVELET COMPRESSION FOR MEDICAL BIG DATA	256
HUAIYU WEN ^{1,3} , FADIA SHAH ² , WEIDONG HUO ³ , JIANPING LI ² , RAHEEL AHMED MEMON ² , FAIZA SHAH ⁴	
¹ Southwest University of Finance & Economics, Sichuan, China	
² School of Computer Science and Engineering, University of Electronic Science and Technology of China, Chengdu 611731, China	
³ Chengdu University, Sichuan, China	
⁴ Communication Engineering, Hangzhou Dianzi University, Hangzhou310018, China	

#02_26: A PERSPECTIVE CORRECTION METHOD BASED ON THE BOUNDING RECTANGLE AND LEAST SQUARE FITTING 260

BAO YANG, JESSE S. JIN, FEI LI, XIANFENG HAN, WEI TONG*, MINGJIE WANG*
School of Computer Software, Tianjin University, Tianjin 300000, China

#02_27: VISION BASED INFORMATION RETRIEVAL 265

ASIF KHAN¹, JIANPING LI¹, MOHD YUSUF KHANN²

¹University of Electronic Science and Technology of China

²Indian Institute of Technology, Roorkee

#02_28: LOCALIZATION IN IMAGES MATCHING THROUGH REGION-BASED SIMILARITY TECHNIQUE FOR CONTENT-BASED IMAGE RETRIEVAL 269

MUHAMMAD HAMMAD MEMON¹, JIANPING LI¹, IMRAN MEMON², QASIM ALI ARAIN³, SIDRA JAMIL⁴, MUHAMMAD HUNAIN MEMON⁵

¹School of Computer Science & Engineering, University of Electronic Science and Technology, Chengdu 611731, China

²College of Computer Science, Zhejiang University, Hangzhou 310027, China

³Beijing University of Posts and Telecommunication, Beijing, China

⁴School of Microelectronics and Solid State Electronics, University of Electronic Science and Technology of China, Chengdu 611731, China

⁵School of Information Science and Technology, University of Science and Technology of China.

#02_29: INFRARED AND VISIBLE IMAGE FUSION USING SALIENCY DETECTION BASED ON SHEARLET TRANSFORM 273

CHUN FEI¹, PING ZHANG*,², MING TIAN², XIAOWEI WANG², JIANG WU²

¹School of Computer Science and Engineering, University of Electronic Science and Technology of China, Chengdu 611731, China

²School of Optoelectronic Information, University of Electronic Science and Technology of China, Chengdu, China

#02_30: IMPROVED PARALLEL COMBINATORY SPREAD SPECTRUM COMMUNICATION SYSTEM 277

MINGDUO LIU^{1,2}, ZHAOWEI QU², LI-LI GUO³, XIAOJIE QI¹

¹College of Automobile and Traffic Engineering, Heilongjiang Institute of Technology, Harbin 150001, China

²College of Traffic Engineering, Jilin University, Changchun 130012 China

³College of Information and Communication Engineering, Harbin Engineering University, Harbin 150001, China

#02_31: PEDESTRIAN DETECTION BY USING SUBDIVISION LABEL 281

PING KUANG, TINGSONG MA, ZIWEI CHEN, FAN LI

School of Information and Software Engineering, International Centre for Wavelet Analysis and Its Applications, University of Electronic Science and Technology of China, Chengdu 611731

#02_32: AUTONOMOUS FAULT DETECTION AND RECOVERY SYSTEM IN LARGE-SCALE NETWORKS 285

RAHEEL AHMED MEMON^{1,2}, JIAN PING LI¹, FADIA SHAH¹

¹School of Computer Science and Engineering, University of Engineering Science and Technology, Chengdu, China

²Department of Computer Science, Sukkur IBA, Sindh, Pakistan

#02_33: THE AUTONOMIC NERVOUS MECHANISM OF MUSIC THERAPY FOR DENTAL ANXIETY 289

KUN WANG^{1,2}, WANHUI WEN^{1,2,*}, GUANGYUAN LIU^{1,2}

¹Chongqing Key Laboratory of Non-linear Circuits and Intelligent Information Processing, Southwest University, Chongqing, 400715, China

²School of Electronic and Information Engineering, Southwest University, Chongqing, 400715, China

#02_34: AN OBJECT PETRI NET BASED MODELING METHOD FOR COMBAT ORGANIZATION PROCESS IN HUMAN VIEW 293

LI MA, AIMIN LUO, JIONG FU

Science and Technology on Information Systems Engineering Laboratory, National University of Defense Technology, Changsha, Hunan, China

#02_35: RESEARCH ON NARROW PULSE GENERATION FOR ULTRA - WIDEBAND COMMUNICATION 299

RAN ZHANG, LAILIANG SONG

School of Instrumentation Science and Opto-electronics Engineering, Beihang University, Beijing 100191, China

#02_36: A STUDY ON SPATIAL ALLOCATION OF METROPOLIS LAND SUPPLY BASED ON MAPGIS 303

WENGUANG JI^{1,2}, LEE YANG JAE¹

¹Wonkwang University Municipal Engineering Department, Iksan, Korea

²Hebei Normal University Nationalities, Chengde 067000, China

Track 03: Embedded System and Others

#03_01: RETROSPECT AND PROSPECT OF WAVELET AND BIG DATA: A SURVEY 307

WANG ZHOU, JIANPING LI, FADIA SHAH

School of Computer Science and Engineering, University of Electronic Science and Technology of China, Chengdu, China

#03_02: PEDESTRIAN INTRUSION DETECTION BASED ON IMPROVED GMM AND SVM 311

MINGDONG ZHANG¹, JESSE S. JIN^{1,*}, MINGJIE WANG^{1,*}, BENLAI TANG², YAN ZHENG¹

¹School of Computer Software, Tianjin University, Tianjin 300000, China

²NanKai University College of Software, Tianjin 300000, China

#03_03: WAVELETS FOR MEDICAL BIG DATA ACCESS IMPROVEMENT STRATEGY OVER WIRELESS NETWORK 316

FADIA SHAH, JIANPING LI, JOSHUA DAGADU CALEB, WANG ZHOU, YASIR SHAH, FAIZA SHAH

School of Computer Science and Engineering, University of Electronic Science and Technology of China, Chengdu 611731, China

#03_04: TEMPERATURE PREDICTION OF NANO-IRON POWDER DECOMPOSING FURNACE BASED ON SAPSO-ELM 320

SHENG-HUI WANG¹, JINYOU WANG¹, YINGNAN WANG²

¹College of Electrical and Electronic Engineering, Changchun University of Technology, Changchun 130012, China

²School of Engineering & Technology, Jilin Agricultural University, Changchun 130118, China

#03_05: STABILITY CONTROL OF HUB MOTOR DRIVEN PURE ELECTRIC VEHICLE 324

NIAONA ZHANG¹, HAOLIN LI¹, YAN-YANG LI¹

¹School of Electrical & Electronic Engineering, Changchun University of Technology, Changchun 130012, China

#03_06: APPLICATION OF C5.0 ALGORITHM IN FAILURE PREDICTION OF SMART METERS	328
JINCHENG YANG ¹ , PING JIANG ² , GUANGYU CHEN ³ , TIEJIANG YUAN ^{2,4} , FEI XUE ¹	
¹ Xinjiang Electric Power Research Institute, State Grid Corporation of China, Urumqi 830011, China;	
² School of Electrical Engineering, Xinjiang University, Urumqi 830008, Xinjiang Uygur Autonomous Region, China;	
³ State Grid Jibei Electric Power Co., Ltd. Chengde Power Supply Company, Hebei 067000, China;	
⁴ State Key Laboratory of Power Systems, Department of Electrical Engineering, Tsinghua University, Beijing 100084, China	
#03_07: PERFORMANCE EVALUATION AND PARAMETERS ESTIMATION OF THE ANTI-COLLISION PROTOCOL USED IN GB/T 28925-2012	334
LIMING ZHENG, HONGYI WANG, QING YANG, BINGBING ZHANG, LEI CAI	
Machine School of Electronic Science and Engineering, National University of Defense Technology, Changsha 410073, China	
#03_08: RESEARCH ON THE EVALUATION MODEL OF INDIRECT ECONOMIC LOSS IN INFORMATION WARFARE	342
HONGBO GU ¹ , LILI HUANG ²	
¹ Logistical Engineering University, Chongqing	
² Chongqing Entry Exit Inspection and Quarantine Bureau, Chongqing, 400020	
#03_09: RESEARCH ON FINANCIAL TIME SERIES FORECASTING BASED ON SVM	346
YUJUN YANG ^{1, 2, 3} , YIMEI YANG ^{2, *} , JIANPING LI ¹	
¹ School of Computer Science and Engineering, University of Electronic Science and Technology of China, Chengdu 611731, China	
² School of Computer Science and Engineering, Huaihua University, Huaihua, 418008, China	
³ Hunan Provincial Key Laboratory of Ecological Agriculture Intelligent Control Technology, Huaihua, 418008, China	
#03_10: A SINUSOIDAL-SIGNAL-ASSISTED METHOD OF IMPROVING MULTIVARIATE EMPIRICAL MODE DECOMPOSITION	350
YANHUA SHI, YUE LENG, YUANKUI YANG, HAIXIAN WANG, SHENG GE	
Key Laboratory of Child Development and Learning Science, Ministry of Education, Research Center for Learning Science, Southeast University, 2 Sipailou, Nanjing 210096, China	
#03_11: BEARING FAULT DIAGNOSIS BASED ON MULTI-SCALE POSSIBILISTIC CLUSTERING ALGORITHM	354
YATING HU ¹ , FUHENG QU ² , CHANGJI WEN ¹	
¹ College of Information and Technology, Jilin Agriculture University, Changchun, China	
² College of Computer Science and Technology, Changchun Univ. of Sci. and Tech. Changchun, China	
#03_12: A MODEL FOR CROWD EVACUATION UNDER SMOKE	358
YUYU LU ¹ , HAO TAN ²	
¹ Class 4 Senior Grade 2015, the Middle School Attached to Sichuan Normal University, Chengdu, China	
² School of Computer Science and Engineering, University of Electronic Science and Technology of China, Chengdu, China	
#03_13: FNIRS-ASSISTING BIMODAL EEG BASED SSVEP	362
ZHÀOXUAN LI, XINYU HUANG, GAOPENG SUN, YANHUA SHI, YUE LENG, YUANKUI YANG, HAIXIAN WANG, SHENG GE	
The Key Laboratory of Child Development and Learning Science of the Ministry of Education, Research Center for Learning Science, Southeast University, 2 Sipailou, Nanjing 210096, P.R. China.	

#03_14: AN INVARIANT OBSERVER FOR ACTIVATED SLUDGE WASTEWATER TREATMENT PROCESS 366
YINGBO LIU¹, XIJU ZONG¹, YANXIA SUN², XINGONG CHENG¹

¹Institute of Electric Power, School of Automation and Electrical Engineering, Jinan University, Jinan 250022, China

²Department of Electrical and Electrical Engineering Science, University of Johannesburg, Auckland Park, Johannesburg 2006, South Africa

#03_15: AUTONOMOUS GROUND PIPELINES TRACKING VIA AN UAV 372

XIAOQIAN HUANG, AMIT SHUKLA, HAMAD KARKI

Department of Mechanical Engineering, Petroleum Institute, Abu Dhabi, UAE

#03_16: INTERCEPT ANGLE CONSTRAINED GUIDANCE LAW USING ADAPTIVE EXTENDED STATE OBSERVER 376

SEN WANG¹, WEI-HONG WANG¹

¹Science and Technology on Aircraft Control Library, School of Automation Science and Electrical Engineering, Beihang University, Beijing 100191, China

#03_17: STUDY ON THE OPTIMAL ATTACK POSITION OF ANTISUBMARINE HELICOPTER IN FLIGHT PICKLE N/A

QIANG ZHENG¹, RIJIE YANG¹, ZHICHAO SHAN¹, JIAQI CHEN²

¹Department of Electronic Engineering, Naval Aeronautical and Astronautical University, Yantai 264001, China

²Department of Basic Experiment, Naval Aeronautical and Astronautical University, Yantai 264001, China

#03_18: PID PARAMETER OPTIMIZATION OF THE GRATE COOLING ELECTRO-HYDRAULIC POSITION SERVO SYSTEM BASED ON APSO 385

CHANGHONG JIANG, HONG XU, SHENGHUI WANG

College of Electrical and Electronic Engineering, Changchun University of Technology, Changchun 130012, China

#03_19: DESIGN OF AIR SUSPENSION SYSTEM BASED ON NEURAL SLIDING MODE CONTROL 391

NIAONA ZHANG, YANYANG LI, HAOLIN LI, CHANGZHE ZHOU

School of Electrical & Electronic Engineering, Changchun University of Technology, Changchun 130012, China

#03_20: EXPERIMENTAL RESEARCH ON THE ENERGY CONSUMPTION LAWS AND ITS INFLUENCING FACTORS OF BELT CONVEYOR SYSTEMS 395

SHUAIJUN ZHOU^{1,3}, FEI ZENG^{2,*}, JUN DU¹, QING WU⁴, FUJI REN³

¹School of Electrical Engineering, Nantong University, Nantong, 226019;

²(Corresponding author) School of Transportation, Nantong University, Nantong, 226019;

³Graduate School of Science and Technology, Tokushima University, Japan, 7708506;

⁴Key Laboratory for Port Cargo Handling Technology Ministry of Communications, PRC, Wuhan University of Technology, Wuhan, 430063, China.

#03_21: A HIGH SPEED PARALLEL TIMING SYNCHRONIZATION ALGORITHM FOR 16QAM 403

HAO LI, ZHIGANG WANG, HOUJUN WANG

School of Automation Engineering, University of Electronic Science and Technology of China, Chengdu 611731, China

#03_22: THE IMPROVED ADAPTIVE HYBRID FUZZY CONTROL OF AUV HORIZONTAL MOTION 408

LI YE, GUO HONGDA, GONG HAO, JIANG YANQING, AN LI, MA TENG

Science and Technology on Underwater Vehicle Laboratory, Harbin Engineering University, Harbin 150001, China

#03_23: STRUCTURE DESIGN AND PROCESS IMPROVEMENT OF PLANAR OXYGEN SENSOR	415
ZIQIANG XU ^{1,2} , SIMON ANG ² , MARZIA ZAMAN ² , SHAOWEI HE ³ , SI HUANG ² , HONG XIA ⁴	
¹ School of Energy Science and Engineering, University of Electronic Science and Technology of China (UESTC), Chengdu 611731, China	
² High Density Electronics Center, Department of Electrical Engineering, University of Arkansas, Fayetteville 72701, USA	
³ School of Optoelectronic Information, UESTC, Chengdu 611731, China	
⁴ School of Mathematical Sciences, UESTC, Chengdu 611731, China	
#03_24: DESIGN OF THE INTELLIGENT MONITORING SYSTEM FOR WIRE DRAWING PROCESS	418
ZHONGZHEN CHENG, YONGJIE YANG*	
School of Electronics and Information, Nantong University, Nantong 226019, China	
#03_25: THE DESIGN OF OPTICAL FIBER FUSION IMAGE TIME SHARE ACQUISITION SYSTEM	422
YAN GAO, YING HONG, LINGUO YANG, JISHENG HU, YOUJIN HUANG, YANCHUN YAO, HENG LIU	
Department of Electrical Engineering, Anhui Vocational and Technical College, Hefei, Anhui, 230011, China	
#03_26: A SURVEY OF RESEARCH ON ANOMALY DETECTION FOR TIME SERIES	426
HUSHENG WU	
Materiel Engineering College, Armed Police Force Engineering University, Xi'an 710086, China	
#03_27: RESEARCH ON OPTIMAL FREE SIZE OF ONLINE CONTENT UNDER HYBRID BUSINESS MODEL	432
HUAYU CUI, YAMENG SUN, WEI LI	
Department of Management Science and Engineering, East China University of Science and Technology, Shanghai, China	
#03_28: DESIGN AND REALIZATION OF 12-LEAD ELECTROCARDIOSIGNAL ACQUISITION AND PROCESSING SYSTEM	436
CHUANXIANG QUE ¹ , QUAN LIU ² , QINGSONG AI ² , KUN CHEN ²	
¹ School of Information Technology, Wuhan University of Technology, Wuhan 430063, China	
² Key Laboratory of Fiber Optic Sensing Technology and Information Processing, Ministry of Education, Wuhan University of Technology, Wuhan 430070, China	
#03_29: RESEARCH ON OPTIMIZE DESIGN METHOD OF SHIP SEA WATER COOLING SYSTEM	440
XINGMING QI, JINYI JIAO, GANG ZHENG	
China Ship Development & Design Center, Wuhan 43064, China	
#03_30: STUDY OF CROSSTALK BETWEEN THE HARNESSSES OF TCU CONTROLLER	444
AIGUO WANG ¹ , GUOFENG REN ²	
¹ Dept. of Automotive Eng., Anhui Technical College of Mechanical and Electrical Engineering, Wuhu Anhui 241002, China	
² Institute of Automotive Electronic Technology, Shanghai Jiaotong University, Shanghai 200240, China	
#03_31: HIGH-PRECISION TT&C SIGNAL SIMULATION TECHNOLOGY BASED ON LAGRANGE INTERPOLATION IN HIGH DYNAMIC ENVIRONMENT	448
SHAOZHONG LU ¹ , SHENG LI ¹ , ZHIYUAN PENG ¹ , ZHENGANG TANG ²	
¹ School of Information and Electronics, Beijing Institute of Technology, Beijing 100081, China	
² Shanghai Institute of Satellite Engineering, Shanghai 200240, China	

#03_32: PROJECTIVE GEOMETRY METHODOLOGY FOR HEAD POSE ESTIMATION USING ADABOOST-LBP	453
XIAOMENG WANG, KANG LIU, XU QIAN School of Mechanical Electronic & Information Engineering of China University of Mining and Technology, Beijing	
#03_33: DESIGN OF MULTI-SENSORS INTEGRATED NAVIGATION SYSTEM	458
PING WU ^{1,2} , WENJING ZHAI ^{1,2} , YI-BO SONG ^{1,2} , XIONGBO ZHAO ^{1,2} , PENG LONG JIANG ^{1,2} ¹ National Key Laboratory of Science and Technology on Aerospace Intelligent Control, Beijing 100039, China ² Beijing Aerospace Automatic Control Institute, Beijing 100039, China	
#03_34: RESEARCH AND DESIGN OF EMBEDDED MICROPROCESSOR BASED ON ARM ARCHITECTURE	463
QINGMING YI, MIN SHI, MINGMIN CHEN, GENG WANG College of Information Science and Technology, Jinan University, Guangzhou 510632, China	
#03_35: COORDINATED STANDOFF TRACKING OF MOVING TARGETS WITH OPTIMAL MEASUREMENT CONFIGURATION	468
QIAN ZHU ¹ , RUI ZHOU ¹ , JIE ZHANG ² ¹ School of Automation Science and Electrical Engineering, Beihang University, Beijing 100191, China ² AVIC Chengdu Aircraft Design & Research Institute, Chengdu 610091, China	
#03_36: INFLUENCE ON FLEXIBILITY OF NETWORKED C2 STRUCTURE WITH DIFFERENT IMPORTANCE OF TASKS	473
CHEN CHEN, JUNXIAN LIU, JIANWEI SHI, QINGWEI LI Science and Technology on Information Systems Engineering Laboratory, National University of Defense Technology Changsha 410073, China	
#03_37: AN EFFICIENT TECHNIQUE TO ESTIMATE OBJECT SPEED	477
MUDASSIR KHALIL ¹ , JIAN-PING LI ¹ , YASIR SALEEM ² , ASIF KHAN ¹ ¹ School of Computer Science and Technology, University of Electronic Science and Technology of China ² University of Engineering and Technology Lahore	