

7th International Congress of Information and Communication Technology (ICICT 2017)

Procedia Computer Science Volume 107

Sanya, China
1-2 January 2017

Editor:

Srikanta Patnaik

ISBN: 978-1-5108-3997-7

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© by Elsevier B.V.
All rights reserved.

Printed by Curran Associates, Inc. (2017)

For permission requests, please contact Elsevier B.V.
at the address below.

Elsevier B.V.
Radarweg 29
Amsterdam 1043 NX
The Netherlands

Phone: +31 20 485 3911
Fax: +31 20 485 2457

<http://www.elsevierpublishingsolutions.com/contact.asp>

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



ELSEVIER

Available online at www.sciencedirect.com

ScienceDirect

Procedia Computer Science 107 (2017) iii–vii

Procedia
Computer Science

Contents

Preface	1
S. Patnaik	1
The Design and Implementation of Intelligent Microgrid Monitoring System Based on WEB	4
J. Zhuang, G. Shen, J. Yu, T. Xiang, X. Wang	4
Parallel Computation of Ground Radiation Simulation Based on GPU	9
Z. Yanjie, Y. Guoqing, D. Yanqing	9
Twin Odd-graceful Trees Towards Information Security	15
H. Wang, J. Xu, B. Yao	15
Application of Secret Sharing in XML Protection Mechanism	21
L. Guo, J. Wang, H. Wu	21
Searching Forward Complete Attack Graph Generation Algorithm Based on Hypergraph Partitioning	27
H. Li, Y. Wang, Y. Cao	27
A Study on the Factors about Customers' Acceptability to Airline Ancillary Products	39
X. Yong, X. Jianbin, B. Yu	39
An Improved Rainbow Table Attack for Long Passwords	47
L. Zhang, C. Tan, F. Yu	47
The Design of Agricultural Machinery Service Management System Based on Internet of Things	53
R. Zhang, F. Hao, X. Sun	53
The Current Status and Future Perspectives of Virtual Maintenance	58
Y. Rao, B.-I. Xu, T. Jing, F. Zhang, X.-Y. Zhao	58
Measuring Broadband Internet Performance in Nepal: A Comparative Study	64
N.K. Karn, Z. Hongli, M. Shafiq	64
High-speed Train Axle Temperature Monitoring System Based on Switched Ethernet	70
Q. Liu	70
Research of An Intelligent Experimental Teaching Platform Based on Internet	75
Z. Cui, J.-E Wang	75
A Warm-CDP Backup System	80
H. Wang	80
Robustness Analysis Model for MADM Methods Based on Cloud Model	84
C. Li, X. Zhang, H. Geng, J. Yan	84
Describing the Information Spreading on a Small-world Network Based on State Space	91
L. Zhang, L. Zhu, Y. Yang	91
Web Topic Analysis of the Two-child Policy in China	97
Y. Lu, M. Zheng	97
Research on Web Services-based Extenics Aided Innovation System	103
S. Yan, R. Fan, Y. Chen, D. Wang, C. Huang, J. Xie, M. Chen, M. Zheng	103
Research of the Hardware Architecture of the Geohazards Monitoring and Early Warning System Based on the IoT	111
W. Honghui, T. Xianguo, L. Yan, L. Qi, N. Donglin, M. Lingyu, Y. Jiaxin	111
Numerical Simulation of Square Section Venturi Scrubber with Horizontal Spray	117
Z. Luan, X. Liu, M. Zheng, L. Zhu	117
A New Framework on Regional Smart Water	122
W. Yuanyuan, L. Ping, S. Wenzhe, Y. Xinchun	122
A Method for Group Animation Based on Artificial Life	129
W. Tongtong, Z. Guohui	129
Facial Expression Recognition with Faster R-CNN	135
J. Li, D. Zhang, J. Zhang, J. Zhang, T. Li, Y. Xia, Q. Yan, L. Xun	135
Target Detection Method Before Tracking based on Particle Filter	141
Z. Wang, C. Mo, H. Dai	141
New Graphic Password Scheme Containing Questions-Background-Pattern and Implementation	148
B. Togookhuu, J. Zhang	148
Coordination Dispatch of Electric Vehicles Charging/Discharging and Renewable Energy Resources Power in Microgrid	157
X. Jiang, J. Wang, Y. Han, Q. Zhao	157
Locality of Some Optimal Ternary Linear Codes	164
R. Yang, R. Li, L. Guo, Q. Fu, Y. Rao	164

doi:10.1016/S1877-0509(17)30472-6

Research on Human-computer Interaction Technology of Wearable Devices Such as Augmented Reality Supporting Grid Work Z. He, T. Chang, S. Lu, H. Ai, D. Wang, Q. Zhou	170
Automatic Security Analysis of EPCBC against Differential Attacks P. Yang, C. Wu, W. Zhang	176
Power and Spectrum Allocation in D2D Networks Based on Coloring and Chaos Genetic Algorithm M. Ru, S. Yin, Z. Qu	183
Structure Design and Application of Combination Track Intelligent Inspection Robot Used in Substation Indoor X. Zhao, Z. Liu, Y. Liu, B. Zhang, J. Sui, K. Jiang	190
Modeling and Simulation of Temperature Control System of Coating Plant Air Conditioner D. Jie	196
A Method of Multi-attribute Decision Making Based on Basic Point and Weighting Coefficients Range J. Liu, G. Long, X. Xu	202
PTZ Control System of Indoor Rail Inspection Robot Based on Neural Network Prediction Model Z. Liu, X. Zhao, J. Sui, H. Wang, Y. Liu, K. Jiang	206
Application of Artificial Intelligence Method Coupled with Discrete Wavelet Transform Method M. Tayyab, J. Zhou, R. Adnan, X. Zeng	212
Research on the Construction of Search Database Patent Platform for Intelligent Industrial Robots Z. Xuexi, H. Zhiwen, Z. Heyuan, C. Jinsong, L. Zhao	218
Design and Implementation of Configurable SHIFT Instructions Targeted at Symmetrical Cipher Processing L. Nan, X. Zeng, W. Li, Z. Wang	225
Real-time Evaluation Model of Power Line Fault Probability Based on Multiple Meteorological Factors C. Yongxing, Z. Yufang, Z. Hongyu	231
Low Complexity Robust Direction Finding Method for Impulsive Noise in l_p -Space R. Lu, S. Zhu, B. Huang, M. Zhang, X. Liu, A. Zhang	236
Tourism Route Decision Support Based on Neural Net Buffer Analysis Z. Xiao, L. Sen, F. Yunfei, L. Bin, Z. Boyuan, L. Bang	243
A Graph-based Approach of Automatic Keyphrase Extraction Y. Ying, T. Qingping, X. Qinzheng, Z. Ping, L. Panpan	248
Evaluation of Motor Training Performance in 3D Virtual Environment via Combining Brain-computer Interface and Haptic Feedback H. Wu, S. Liang, W. Hang, X. Liu, Q. Wang, K.-S. Choi, J. Qin	256
Research on the Water Resource Management Based on Game Model L.I. Xianshi	262
Dynamic Model for the Prediction of Load Distribution and the Fault Diffusion through a Network Y. Yuqi, Z. Lei, X. Sheng	268
A Text Feature Selection Method Based on the Small World Algorithm Y. Lu, Y. Chen	276
Enterprise Knowledge Recommendation Approach Based on Context-aware of Time-sequence Relationship J. Song, H. Zhan, J. Yu, Q. Zhang, Y. Wu	285
Spatial Spectrum Sparse Reconstruction for Maneuvering Towed Array J. Yuan, H. Xiao, Z. Cai, C. Xi	291
The Heat load Prediction Model Based on BP Neural Network-markov Model L. Xie	296
A Scenario Representation Model for Emergency Decision Support L. Cheng, Y. Shuiping, Q. Jing, Y. Shengcheng, M. Xun, L. Yi	301
An Improved FAST+SURF Fast Matching Algorithm A. Li, W. Jiang, W. Yuan, D. Dai, S. Zhang, Z. Wei	306
Error Detection by Diverse Instructions and Loop Optimization in DSP Z. Shao, Q. Tan, J. Xu, X. Meng	313
Binary-LDPC-Coded DP-QDQ Transmission Scheme and its Performance Analysis C. Chang, B. Huang, Z. Xu, B. Li	319
Research on Multi-level Comprehensive Evaluation Model of Power Grid Efficiency L. Daoxin, G. Lijie, W. Shengyi, Z. Qili, L. Fuxing	325
Wind Turbine Operation and Maintenance Video Supportive System Based on the Mobile Internet of Things Z. Liu, L. Jia, Y. Pang	332
IT Disaster Tolerance and Application Classification for Data Centers T. Zhu, Y. Xie, Y. Song, W. Zhang, K. Zhang, F. Gao	341
A Numerical Simulation of Probability Study on Fatigue Fracture of Heavy Machinery Z. Lidong, M. Wenjun, Z. Yufen, F. Xiaoning, Q. Xiaogang, S. Chonghui	347
The Quality Evaluation of Classroom Teaching Based on FOA-GRNN J. Cheng, Y. Xiong	355
A Representation and Matching Algorithm for Planar Curve Based on Distance Ratio and Concentric Circles J. Changjiang, L. Mingfu, W. Jin, L. Xiupeng	361

Research of Temporal Information Index Strategy Based on HBase C. Feng, B. Li	367
Application of Extreme Learning Machine Combination Model for Dam Displacement Prediction J. Cheng, Y. Xiong	373
Research on Influence of Source Number Estimation on Application of Blind Source Separation Algorithms W. Chuanchuan, X. Jiaqi, Z. Yonghu	379
According to Ietm Technique of then the Hold Type Maintain Information Support System Design C. Zhong, D. Gu, K. Liu, Y. Sun	385
The Distribution of Classification Accuracy Over the Whole Head for a Steady State Visual Evoked Potential Based Brain-Computer Interface G. Sun, Y. Yang, Y. Leng, H. Wang, S. Ge	389
A Flexible Data Scheduling Scheme for Block Cipher Processor G. Li, J. Xu, Z. Dai, S. Wang, Y. Zhu	395
Research on Management Software Design of Energy Storage System for Stratospheric Airship K. Sun, J. Dong, S. He, J. Zhang, X. Zhang, M. Sun, D. Xu	401
Analysis of Computer Fashion Illustration's Prospects P. Liu, Y. Liu	408
Classification Based on Feature Extraction For Hepatocellular Carcinoma Diagnosis Using High-throughput Dna Methylation Sequencing Data Z. Yang, M. Jin, Z. Zhang, J. Lu, K. Hao	412
Model Study for Intelligent Transportation System with Big Data J. Zeyu, Y. Shuiping, Z. Mingduan, C. Yongqiang, L. Yi	418
Snow Avalanche Susceptibility Based Assessment of Release Zones over Complex Terrain of Siachen Glacier Applying Ramms and Dsr as Active Macroclimatic Factor T. Sardar, A. Xu, A. Raziq	427
Car Sales Analysis Based on the Application of Big Data Q. Zhang, H. Zhan, J. Yu	436
Parallel Implementation of Density Peaks Clustering Algorithm Based on Spark R. Liu, X. Li, L. Du, S. Zhi, M. Wei	442
Remote Sensing Image Content Retrieval Based on Frequency Spectral Energy D. Yanqing, Y. Guoqing, Z. Yanjie	448
Super-resolution Reconstruction of Satellite Video Images Based on Interpolation Method X. Qifang, Y. Guoqing, L. Pin	454
Research on Weak Resonance Signal Detection Method Based on Duffing Oscillator H. Shi, W. Li	460
Network Models Made by Dynamic Differential Equations B. Yao, J. Su, F. Ma, X. Wang, H. Sun, M. Yao	466
Radio Frequency Fingerprint Extraction of Radio Emitter Based on I/Q Imbalance F. Zhuo, Y. Huang, J. Chen	472
Radar and Jammer Power Allocation Strategy Based on Matrix Game L. Wang, L. Wang, Y. Zeng, M. Wang	478
Context Awareness Based Bandwidth Management Scheme for Ad hoc Network W. Haitao, S. Lihua, C. Hui, Y. Li, Z. Guomin, H. Qiang	484
Research on P4PCDN Automatic Construction Strategy Based on Network Measurement Z. Ying, W. Sining, L. Zhiyong, S. Qiuhong	490
A Design and Implementation of Mobile Video Surveillance Terminal Base on ARM J. Changjiang, W. Jin, L. Mingfu, L. Zhichuan	498
Interference Signal Suppression by Polarization Filters under Estimate Error Z. Wang, C. Mo, H. Dai	503
Adaptable Quota-stretchy Routing for Delay-tolerant Networks D. Huang, Z. Gao, K. Niu, X. Qiu	513
Diversity-multiplexing Tradeoff of Opportunistic Relaying Coded Cooperation and Distributed Space-time Coding Coded Cooperation X. Kun, L. Xiao	520
Overlapping Community Identification Algorithm in Directed Network H. Long, B. Li	527
An Improved Joint Channel Estimation of Wireless Communication T. Fan, S. Huang, S. Gu	533
Viterbi Detection Method of $\pi/4$ -QPSK Signal in VDE S. Ma, W. Deng	539
Research on OBIfree Technology Based on C-DOCSIS+RFoG Network Z. Xinyuan, Z. Genliang, Z. Jiefang	545
Study on Modeling of Communication Channel of UAV L. Bing	550
DDAS-DRoF Based a New In-Building Signal Coverage System Supporting Multiple Services J. Wang, S. Zhao, X. Hu, E. Guan, Z. Ding, Y. Yao	558

Chrestenson Function and its Application in Spread Communication M. Zhou, X. Shi	564
A Successive SLNR Based Pre-processing Matrix for Downlink Multi-user MIMO Systems L. Haitao, X. Jing, D. Jifeng	570
Researches on Evaluations of Large-scale Complex Networks Topologies X. Ye, C. Fei	577
Study on Parameter Evaluation System of Communication Network H. Sun, X. Cai, H. Chen	584
A Message Distribution Mechanism Based on Distributed Game Theory in Lte-V Network Z. Ning, P. Wang, N.N. Van	590
Asymptotically Local Synchronization of an Interdependent Network with Two Sub-Networks and Delays Y. Huang, L. Tu	599
Opportunistic Networks Model with Restricted Time-Space M.-h. Yao, X.-l. Bao, S. Zhang, Y. Wang, Z.-j. Shi	608
A Distributed Sensor Management Algorithm Based on Auction F. Deliang, R. Xiaomin	618
A Two-Dimensional DOA Tracking Algorithm Using PAST with L-Shape Array G. Lu, B. Hu, X. Zhang	624
Analysis of Associtivity and Community Structure in Mobile Social Networks W. Zheng, X. Zhao, Z. Kang	630
An Asymmetric Transport Protocol for Internet of Things Y. Zhang, J. He, M.S. Pathan	636
Optical Solitons and Cnodial Waves in Two Kinds of Inhomogeneous Nonlinear Media with Constant and Variable Dispersions Z. Jiefang	642
A Method of Multi-Antenna Signal Selection Based on SNR Estimation X. Xiao, Z. Xiaoyi, S. Caiyao	646
DOA Estimation Based on Reduced-rank Multistage Wiener Filter M. Zhang, R. Lu, S. Zhu, A. Zhang	652
Automatic Network Policy Change on the Basis of Quality of Experience (QoE) A.A. Laghari, H. He, M. Ibrahim, S. Shaikh	657
Visualization of Radar Electromagnetic Waves with Jamming G. Zhongwei, L. Bin	660
Downlink Channel Allocation of Visible Light Communication Network Based on Graph Coloring and Traffic Fairness F. Yunlong, L. Jianhui, L. Qing, Z. Xiaoyi	667
A Method of Gate-Level Circuit Yield Calculation Based on PTM J. Xiao, W. Lee, X. Yang, H. Hu, Y. Huang	674
Design of the Exciter of Weather Fax Chart and NAVTEX Message J. Yao, F. Liu, W. Zhang	685
An Novel Architecture and Inter-process Communication Scheme to Adapt Chromium Based on Docker Container X. Geng, X. Zeng, L. Hu, Z. Guo	691
Study on Location of Wireless Sensor Network Node in Forest Environment H. Li, Z. Lin	697
Designation of Host Control Software for Wideband Signal Generator Based on CPCI Bus L. Ruiqi, Y. Jian, Y. Zhicheng, L. Zhiqiang	705
Research and Implementation of Mobile Storage Devices Monitor and Control System J. Haixia, Z. Xingyu, T. Wei	710
A Deep Convolution Neural Network Model for Vehicle Recognition and Face Recognition X. Luo, R. Shen, J. Hu, J. Deng, L. Hu, Q. Guan	715
Edge Detection with Non-Uniform Assembly Coefficients and Self-Adaptive Merge Weights for RGB Image J. Hao, A. Han, F. Han, L. Han	721
Application Study of the Microwave Emissivity Spectra in the Estimation of Salt Content of Saline Soil T. Chi, B. Li, L. Mu, G. Cao	727
The Application of Nano Porous PvdF Beads in Solder Paste Printing Junjie Lv	733
Uyghur Printed Document Image Retrieval Based on SIFT Features A. Batur, G. Tursun, M. Mamut, N. Yadikar, K. Ubul	737
Contact Analysis for the Process of Dual Abrasive Belt Polishing Screw Curved Surface Y. Heran, S. Xingwei, P. Fei, Y. Tongchun	743
Image Retrieval Using Fused Deep Convolutional Features H. Liu, B. Li, X. Lv, Y. Huang	749
Image Signal Separation by Adaptive Blind Fuzzy Estimator Y. Du, X. Niu, K. Yen	755

Dynamic Searching and Classification for Highlight Removal on Endoscopic Image Y. Gao, J. Yang, S. Ma, D. Ai, T. Lin, S. Tang, Y. Wang	762
A Study on the Convergence and Analysis of Public Opinion in Cross-linguistic Network on Mongolian and Chinese X. Chen, X. Yan, R. Guo	768
Substation Equipment Abnormal Voice Analysis Method Based on Image Processing Y. Guoqing, F. Hua, W. Xingzhao, L. Juntao, F. Chongguang	772
On Binary LCD Cyclic Codes Y. Rao, R. Li, L. Lv, G. Chen, F. Zuo	778
A Simplified Algorithm for Electromagnetic Field-To-Line Coupling Analysis in a Reverberation Chamber R. Jia, C. Wang, L. Zhao	784
A New Blind Deblurring Method via Hyper-Laplacian Prior J. Kong, K. Lu, M. Jiang	789
An Improved Image Inpainting Algorithm Based on Image Segmentation H. Ying, L. Kai, Y. Ming	796
Application Research on Sparse Fast Fourier Transform Algorithm in White Gaussian Noise L. Zhong, L. Lichun, L. Huiqi	802
Image Reconstruction for Few-view Computed Tomography Based on ℓ_0 Sparse Regularization W. Yu, C. Wang, X. Nie, M. Huang, L. Wu	808
Research for Vulnerability Detection of Embedded System Firmware J.-B. Hou, T. Li, C. Chang	814
Improved Interscale-Based SURE-LET Approach to Image Denoising X. Zhang	819
Design and Modelling of the Cylindrical Conformal FSS with Mechanical Bending Cover Method W. Xin-lei, Y. Yan-ling, Z. De-hua, X. Wei, C. Yi-feng, C. Yu	824
The Effect of Sediment Characteristics to Dispersion of Porous Cylinder Surrounded by Fluid Z.C. Xu, Q.B. Han, Z.W. Tong, L.H. Qi	830
Automatic Wheat Leaf Rust Detection and Grading Diagnosis via Embedded Image Processing System P. Xu, G. Wu, Y. Guo, X. chen, H. Yang, R. Zhang	836
Multilingual Convolutional, Long Short-Term Memory, Deep Neural Networks for Low Resource Speech Recognition D. bukhari, Y. Wang, H. Wang	842
A Novel Fusion Visible Light Location Algorithm Based on RSSI and Imaging of LEDs H. Lu, B. Ba, W.-J. Cui	848
A Fast Accurate Time Delay Estimation Method in the Digital Predistortion Subsystem S. Zhu, Y. He, R. lu, X. Dong, A. Zhang, Z. Xu	855
Import Vector Machine Based Hyperspectral Imagery Classification X. Wei, X. Yu, P. Zhang, A. Yu, R. Li	861
Hybrid System Radar Coincidence Imaging Y. He, S. Zhu, S. Zhang, M. Dong, A. Zhang, Z. Xu	867
Fault Localization Using Function Call Sequences H. Zhu, T. Peng, L. Xiong, D. Peng	871
Research on the Color Temperature & White Balance for Multimedia Sensor Y. Zhang, Y. Gao, Y. He, Y. Shi, K. Liang	878
The On-Line Modeling and Filtering of Echo-Data Noise to Immobile Target W. Lidong, W. Pin, Z. Jinyong	885
The High-Speed Photography Research of Femtosecond Laser Ablation Process D. Zhong, Z. Li	891