

**2017 IEEE 15th International Conference on
Dependable, Autonomic and Secure
Computing, 15th International Conference
on Pervasive Intelligence and Computing,
3rd International Conference on Big Data
Intelligence and Computing and Cyber
Science and Technology Congress
(DASC-PICom-DataCom-CyberSciTec 2017)**

**Orlando, Florida, USA
6-10 November 2017**

Pages 1-662



**IEEE Catalog Number: CFP17RMD-POD
ISBN: 978-1-5386-1957-5**

**Copyright © 2017 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:	CFP17RMD-POD
ISBN (Print-On-Demand):	978-1-5386-1957-5
ISBN (Online):	978-1-5386-1956-8

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

2017 IEEE 15th Intl Conf on Dependable,
Autonomic and Secure Computing, 15th Intl
Conf on Pervasive Intelligence
and Computing, 3rd Intl Conf on Big Data
Intelligence and Computing and Cyber
Science and Technology Congress

DASC-PICom-DataCom-CyberSciTec 2017

Table of Contents

Message from CyberSciTech/DASC/PICom/DataCom 2017

General Executive Chair	XX
Message from CyberSciTech 2017 Program Chairs	
and General Chairs	xxii
CyberSciTech 2017 Organizing Committees	xxiv
CyberSciTech 2017 Technical Program Committee	xxvi
Message from DASC 2017 Program Chairs and General	
Chairs	xxviii
DASC 2017 Organizing Committees	xxx
DASC 2017 Technical Program Committee	xxxii
Message from PiCom 2017 Program Chairs and General	
Chairs	xxxiv
PiCom 2017 Organizing Committees	xxxvi
PiCom 2017 Technical Program Committee	xxxvii
Message from DataCom 2017 Program Chairs	
and General Chairs	xxxix
DataCom 2017 Organizing Committees	xl
DataCom 2017 Technical Program Committee	xlii

2017 IEEE Cyber Science and Technology Congress

CyberSciTech Regular Papers

Semantic Neuron Networks Based Associative Memory Model	1
<i>Peter Kimani Mungai, Runhe Huang, Zhong Chen, and Xiaokang Zhou</i>	
An Integrative and Precise Approach in Personality Computing Based on Ontic Personae Modeling	9
<i>Ao Guo and Jianhua Ma</i>	

Deep Convolution Neural Network Discriminator for Distinguishing Seborrheic Keratosis and Flat Warts	16
<i>Kehua Guo, Ting Li, Runhe Huang, and Jian Kang</i>	
Identifying the Landscape and Trends in Cyberspace Research: From 1989 to 2016	22
<i>Zili Li, Li Zeng, and Zhigang Luo</i>	
Pairwise Preference Over Mixed-Type Item-Sets Based Bayesian Personalized Ranking for Collaborative Filtering	30
<i>Shan Gao, Guibing Guo, Yusong Lin, Xingjin Zhang, Yongpeng Liu, and Zongmin Wang</i>	
Design Considerations for Cyber Security Testbeds: A Case Study on a Cyber Security Testbed for Education	38
<i>Maximilian Frank, Maria Leitner, and Timea Pahi</i>	
Detecting Android Malware Based on Extreme Learning Machine	47
<i>Yuxia Sun, Yunlong Xie, Zhi Qiu, Yuchang Pan, Jian Weng, and Song Guo</i>	
On Extraction of Rules from Deep Learner: The Deeper, the Better?	54
<i>Tomoya Furukawa and Qianfgu Zhao</i>	
Co_Hijacking Monitor: Collaborative Detecting and Locating Mechanism for HTTP Spectral Hijacking	61
<i>Pan Wang and Xuejiao Chen</i>	
Learning to Diversify Recommendations Based on Matrix Factorization	68
<i>Shuang Li, Yuezhi Zhou, Di Zhang, Yaoxue Zhang, and Xiang Lan</i>	
Application of Adaptive Genetic Algorithm for Multimodal Transportation Logistics Distribution Routing Problem	75
<i>Zhe Sun, Zhixin Sun, Xuejian Zhao, Long Jin, and Wei Zhang</i>	
A Survey of Semantics-Aware Performance Optimization for Data-Intensive Computing	81
<i>Bingbing Rao and Liqiang Wang</i>	
Identifying Image Tags from Instagram Hashtags Using the HITS Algorithm	89
<i>Stamatios Giannoulakis, Nicolas Tsapatsoulis, and Klimis Ntalianis</i>	
Caching Scheme with Edge Nodes for Mobile Cyber Physical Systems	95
<i>Qichao Xu, Zhou Su, Yilong Hui, and Qing Yang</i>	
A Smart Visual Analysis Solution for MOOC Data	101
<i>Xiu Li, Chang Men, Fan Zhang, and Zhihui Du</i>	
A Comparison of Hash-Based Methods for Trajectory Clustering	107
<i>Maede Rayatidamavandi, Yu Zhuang, and Mahshid Rahnamay-Naeini</i>	
Analysis of the Impact of Driver Behavior Models on Performance of Forward Collision Warning Systems	113
<i>Ahmad Jamialahmadi and Yaser P. Fallah</i>	
Feature-Based Temporal Statistical Modeling of Data Streams from Multiple Wearable Devices	119
<i>Tongtong Xu, Ao Guo, Jianhua Ma, and Kevin I-Kai Wang</i>	

A Study on Communication Network Reliability for Advanced Metering Infrastructure in Smart Grid	127
<i>Shengjie Xu, Yi Qian, and Rose Qingyang Hu</i>	
Interference Management for Physical Layer Security in Heterogeneous Networks	133
<i>Dongfeng Fang, Yi Qian, and Rose Qingyang Hu</i>	
Incentivization for Health Crowdsensing	139
<i>Luis G. Jaimes and Robert Steele</i>	
A Real Example of Jong Nang and Tomb Gate of Cyber Biology Jeju Island: Its Fundamental Principle of DNA Code	147
<i>Moon Ho Lee</i>	
A Learning-Based Framework for Two-Dimensional Vehicle Maneuver Prediction over V2V Networks	156
<i>Hossein Nourkhiz Mahjoub, Amin Tahmasbi-Sarvestani, Hadi Kazemi, and Yaser P. Fallah</i>	
MMHG: Multi-modal Hypergraph Learning for Overall Survival After D2 Gastrectomy for Gastric Cancer	164
<i>Fei Lu, Zhikui Chen, Xu Yuan, Qiu Li, Zedong Du, Li Luo, and Fengyi Zhang</i>	
Respiratory Sounds Feature Learning with Deep Convolutional Neural Networks	170
<i>Yongpeng Liu, Yusong Lin, Shan Gao, Hongpo Zhang, Zongmin Wang, Yang Gao, and Guanling Chen</i>	
A Bus Arrival Time Prediction Method Based on GPS Position and Real-Time Traffic Flow	178
<i>Lei Jianmei, Chen Dongmei, Li FengXi, Han Qingwen, Chen Siru, Zeng Lingqiu, and Chen Min</i>	
Locality-Driven Dynamic Flash Cache Allocation	185
<i>Liang Xu, Qianbin Xia, and Weijun Xiao</i>	
A Memory Capacity-Aware Algorithm for Fast Clustering of Disk-Resident Big Datasets	194
<i>Ahmad O. Aseeri, Yu Zhuang, and Mohammed Saeed Alkatheiri</i>	
 CyberSciTech Short Papers	
Data-Based Analysis of Sampling and Estimation Methods for Vehicle Tracking Over Wireless Networks	202
<i>Masoumeh Kalantari-Khandani, Wasfy Mikhael, Yaser P. Fallah, and Katerina Goseva-Popstojanova</i>	
Exploiting Mobile Sensor Data for Media Caching in Mobile Edge Networks	208
<i>Zi Wang, Zifei Zhao, Zhiwei Zhao, Geyong Min, Xinyuan Huang, Hancong Duan, and Jia Hu</i>	
An Ontology-Based Framework for Organization Information Extraction	214
<i>Tengku Adil Tengku Izhar and Bernady O. Apduhan</i>	
Exploring the Production of “The Belt and Road”-Driven Animations with Crowdsourcing Model	220
<i>Ting Wu, Fei Hao, and Mijin Kim</i>	
Supervised Machine Learning Algorithm for Android Malware Detection	N/A
<i>Fang Feng, Yang Liu, Xiaokang Zhou, Xuhui Yang, Yanshan Tian, and Qingguo Zhou</i>	

Re-thinking Online Offenders' SKRAM: Individual Traits and Situational Motivations as Additional Risk Factors for Predicting Cyber Attacks	232
<i>David Maimon, Olga Babko-Malaya, Rebecca Cathey, and Steve Hinton</i>	
Holographic Real Time 3D Heart Visualization from Coronary Tomography for Multi-place Medical Diagnostics	239
<i>Arthur A. B. Bucioli, Gabriel F. Cyrino, Gerson F. M. Lima, Isabela C. S. Peres, Alexandre Cardoso, Edgard A. Lamounier, Milton M. Neto, and Roberto V. Botelho</i>	
A Practical Cyber-Physical System for the Self-Capture of the Effect of Exercise on Blood Glucose Levels	245
<i>Andre Goode and Robert J. Steele</i>	
Authentication and Access Control for an IoT Green Roof Monitoring System	251
<i>Feng Ye, Yujun Sun, and Andrew Rettig</i>	
Use of Switching Controllers for Mitigation of Active Identification Attacks in Networked Control Systems	257
<i>Alan Oliveira de Sa, Luiz Fernando Rust da C. Carmo, and Raphael Carlos Santos Machado</i>	
Anomaly Detection for Streaming Data from Wearable Sensor Network	263
<i>Peipei Wang, Yutong Han, Jing Qin, Bin Wang, and Xiaochun Yang</i>	
Data Center, a Cyber-Physical System: Improving Energy Efficiency Through the Power Management	269
<i>Marta Chinnici, Davide De Chiara, and Andrea Quintiliani</i>	
Development of a Platform-Independent Software Tool for Management of X.509 Certificates from Diverse Certificate Stores	273
<i>Thomas Friedl, Henning Schneider, and Miloslava Plachkinova</i>	
Plausible Deniability for ISP Log and Browser Suggestion Obfuscation with a Phrase Extractor on Potentially Open Text	276
<i>Ronald Loui</i>	
Information Warfare Amplified by Cyberwarfare and Hacking the National Knowledge Infrastructure	280
<i>Ronald Loui and Will Hope</i>	
Enabling High-Resolution Video Support for the Next-Generation Internet-Connected Display	284
<i>Yu-Pei Liang, Shuo-Han Chen, Yi-Han Lien, Tseng-Yi Chen, Heng-Yin Chen, and Wei-Kuan Shih</i>	
 Special Session on Cyber-Enabled Smart Environment and Healthcare (Cyber-ESEH)	
Center of Mass Estimation Using Motion Capture System	287
<i>Gabriel Ploof, Bassam Alqahtani, Farwan Alghamdi, Garret Flynn, and Cai Xia Yang</i>	
Buddy: A Virtual Life Coaching System for Children and Adolescents with High Functioning Autism	293
<i>Xiongyi Liu and Wenbing Zhao</i>	

Towards a Technology-Enabled Environment of Care for Nursing Homes	299
<i>Qing Wu and Wenbing Zhao</i>	
A Survey on Smart Wearables in the Application of Fitness	303
<i>Hao Qiu, Xianping Wang, and Fei Xie</i>	
Towards User-Centered Assistance in Smart Environments Based on Device Metadata	308
<i>Marius Rashid Khan, Sabine Sachweh, and Albert Zuendorf</i>	
AED: Adaptive Energy-Efficient Data Transmission Scheme for Heart Disease Detection	312
<i>Albert Budi Christian, Lokesh Sharma, and Shih-Lin Wu</i>	
Improving Wake-Up-Word and General Speech Recognition Systems	318
<i>Veton Këpuska and Gamal Bohouta</i>	
 Special Session on Computing and Applications for Cyber Internet of Things (Cyber-IoT)	
QoE Based Optimization for Cyber Vehicular Networks	322
<i>Hui Hui and Rui Xing</i>	
Security Analysis of Simple Network Management Protocol Based IEEE P21451 Internet of Things	326
<i>Xinzheng Feng, Jun Wu, Kuan Wang, Jianhua Li, and Meng Wang</i>	
Performance Comparison of Base Station On/Off and Base Station Cooperative Transmission in Ultra-Dense Network	331
<i>Junjie Pei, Zhuoxuan Ju, Hengdong Ye, Bibo Wu, and Shu Fu</i>	
Joint Base Station Cooperative Transmission and ON-OFF Mechanism in Internet of Things Networks	336
<i>Hengdong Ye, Zhuoxuan Ju, Bibo Wu, Junjie Pei, and Shu Fu</i>	
 Special Session on Cyber-Enabled Intelligent Sensing and Smart Computing (Cyber-ISSC)	
An Overview on Key Technologies of Secure and Efficient Data Transmission for Energy Internet	340
<i>Song Deng and Kun Wang</i>	
 Special Session on Cyber Social Computing and Cyber-Enabled Applications (CSC&CEA)	
Flexible Analysis of Cross-Organizational Process Modeling Based on π Calculus	346
<i>Ninglin Xu, Jiulei Jiang, and Xiaofeng Wang</i>	
Formalization of Business Process with Flexibility Based on Service Interaction	351
<i>Yaya Liu, Jiulei Jiang, Lingyu Xu, and Lishuang Zhao</i>	
CF-Cluster: Clustering Bike Station Based on Common Flows	356
<i>Liangxu Liu, Dayao Gong, Bo Guan, and Junyan Xiao</i>	

Special Session on ICT Apps, Cyber and Economy Workshop (ACE-2017)

A Novel Cluster-Based Ultra-Dense Network Technique for 5G and its Security Issues	362
<i>Yuping Zhao, Geng Li, and Wanyue Qu</i>	
A Forensic Investigation of Robot Operating System	368
<i>Iroshan Abeykoon, Xiaohua Feng, and Renxi Qiu</i>	
Cyberstalking Issues	373
<i>Xiaohua Feng, Audrey Asante, Emma Short, and Iroshan Abeykoon</i>	

2017 IEEE 15th International Conference on Dependable, Autonomic and Secure Computing

DASC Regular Papers

Fault-Tolerant Network-Server Architecture for Time-Critical Web Applications	377
<i>Kutalmis Akpınar, Fereshteh Jafariakinabad, Kien A. Hua, Omar Nakhila, Jun Ye, and Cliff Zou</i>	
A 3D-Collaborative Wireless Network: Towards Resilient Communication for Rescuing Flood Victims	385
<i>Md Arafatur Rahman, Md Munirul Hasan, A. Taufiq Asyhari, and Md Zakirul Alam Bhuiyan</i>	
Validating the Correctness of Outsourced Computational Tasks Using Pseudorandom Number Generators	391
<i>Yaohang Li, Ravi Mukkamala, and Michael Mascagni</i>	
On Basis Variables for Efficient Error Detection	399
<i>Jake Fairbrother and Matthew Leeke</i>	
Specifying Functional Requirements and QoS Parameters for IoT Systems	407
<i>Bruno Costa, Paulo F. Pires, and Flávia C. Delicato</i>	
Adaptive Zone Replication for Structured Peer-to-Peer Systems	415
<i>Shigeki Yoneda and Naohiro Hayashibara</i>	
Deadlock Detection in the Scheduling of Last-Mile Transportation Using Model Checking	423
<i>Koji Hasebe, Mitsuaki Tsuji, and Kazuhiko Kato</i>	
A Comparative Study of Algorithm for Computing Strongly Connected Components	431
<i>D. Frank Hsu, Xiaojie Lan, Gabriel Miller, and David Baird</i>	
SAFARI-Taxi: Secure, Autonomic, FAult-Resilient, and Intelligent Taxi Hailing System	438
<i>Mohammad A. Hoque, Phil Pfeiffer, Sanford Gabrielle, Edward Hall, and Elizabeth Turbyfill</i>	
Preserving Data Integrity in IoT Networks Under Opportunistic Data Manipulation	446
<i>Shameek Bhattacharjee, Mehrdad Salimitari, Mainak Chatterjee, Kevin Kwiat, and Charles Kamhoua</i>	
Securing Real-Time Cyber-Physical Systems Using WCET-Aware Artificial Diversity	454
<i>Joachim Fellmuth, Paula Herber, Tobias F. Pfeffer, and Sabine Glesner</i>	
Colluded Applications Vulnerabilities in Android Devices	462
<i>Igor Khokhlov and Leon Reznik</i>	

A Hierarchic Secure Cloud Storage Scheme Based on Fog Computing	470
<i>Jiyuan Zhou, Tian Wang, Md Zakirul Alam Bhuiyan, and Anfeng Liu</i>	
On Sustaining Prolonged Interaction with Attackers	478
<i>Roberto M. Vergaray and Julian Rrushi</i>	
Defending Electrical Substations Against 0-Day Malware Through Decoy I/O in Protective Relays	486
<i>Julian L. Rrushi</i>	
Discovering Hidden Relations Between Tor Marketplaces Users	494
<i>Gianluigi Me, Liberato Pesticcio, and Paolo Spagnoletti</i>	
Wireless Spoofing-Attack Prevention Using Radio-Propagation Characteristics	502
<i>Mihiro Sonoyama, Takatsugu Ono, Osamu Muta, Haruichi Kanaya, and Koji Inoue</i>	
Spatial-Temporal Anomaly Detection Using Security Visual Analytics via Entropy Graph and Eigen Matrix	511
<i>Matthew Sinda and Qi Liao</i>	
Towards a Storage-Efficient and Categorized Secure Log Structure Scheme for Embedded Systems	519
<i>Sérgio de Medeiros Câmara, Luiz Fernando Rust da Costa Carmo, and Luci Pirmez</i>	
Approximate Power Grid Protection Against False Data Injection Attacks	527
<i>Kelvin Ly, Kevin Kwiat, Charles Kamhoua, Laurent Njilla, and Yier Jin</i>	
Software Security Testing via Misuse Case Modeling	534
<i>Samer Khamaiseh and Dianxiang Xu</i>	
Target Discovery Differentials for 0-Knowledge Detection of ICS Malware	542
<i>James Halvorsen and Julian L. Rrushi</i>	
Systematic Test Generation for Secure Hardware Supported Virtualization	550
<i>Senwen Kan and Jennifer Dworak</i>	
PhishBox: An Approach for Phishing Validation and Detection	557
<i>Jhen-Hao Li and Sheng-De Wang</i>	
Bot Classification for Real-Life Highly Class-Imbalanced Dataset	565
<i>Sarah Harun, Tanveer Hossain Bhuiyan, Song Zhang, Hugh Medal, and Linkan Bian</i>	
Revisiting Shamir's No-Key Protocol: Lightweight Key Transport	573
<i>Adnan Kiliç, Ertan Onur, and Cansu Betin Onur</i>	
Energy-Efficient Autonomic Offloading in Mobile Edge Computing	581
<i>Changqing Luo, Sergio Salinas, Ming Li, and Pan Li</i>	
Asynchronous Agent Teams for Collaborative Tasks Based on Bottom-Up Alliance Formation and Adaptive Behavioral Strategies	589
<i>Masashi Hayano, Naoki Iijima, and Toshiharu Sugawara</i>	
Towards an Attack Signature Generation Framework for Intrusion Detection Systems	597
<i>Hossain Shahriar and William Bond</i>	
Graphical Animations of State Machines	604
<i>Tam Thi Thanh Nguyen and Kazuhiro Ogata</i>	

DASC Short Papers

Classification of Hierarchical Fault-Tolerant Design Patterns	612
<i>Kai Ding, Andrey Morozov, and Klaus Janschek</i>	
Holographic Memory Calculation FPGA Accelerator for Optically Reconfigurable Gate Arrays	620
<i>Takumi Fujimori and Minoru Watanabe</i>	
Temporal Variation of Trust in Dependable Systems	626
<i>Sudip Chakraborty</i>	
Active Malware Countermeasure Approach for Mission Critical Systems	632
<i>Zachary Thomas and Sherif Abdelwahed</i>	
Combating Data Leakage Trojans in Sequential Circuits Through Randomized Encoding	639
<i>Travis E. Schulze, Daryl Beetner, Yiyu Shi, Kevin Kwiat, Charles Kamhoua, and Laurent Njilla</i>	
A Simulation Study to Detect Attacks on Internet of Things	645
<i>David Eastman and Sathish A.P. Kumar</i>	
Web-Based Malware Mitigation with a Virtualized Web-Browser: A Comparison Study	651
<i>Nick Neely, Zachary Waldman, Mike Burns, and Haklin Kimm</i>	
Modular Norm Models: A Lightweight Approach for Modeling and Reasoning about Legal Compliance	657
<i>Sayonnha Mandal, Robin Gandhi, and Harvey Siy</i>	
A Framework for Zero Day Exploit Detection and Containment	663
<i>Richard Ciancioso, Danvers Budhwa, and Thaier Hayajneh</i>	
Electromagnetic Warfare and the Cybersecurity Threat	669
<i>Damianos (Tom) Pinou, Rien Chy, and Thaier Hayajneh</i>	
Secrecy Capacity and Energy Efficiency Evaluation of RLS-Kaiser Based Smart Antenna System	675
<i>Hailu Belay Kassa, Kevin Kornegay, Yacob Astatke, and Marcial Tienteu</i>	
Detection and Avoidance Technique of Anomalous Congestion at the Network Gateways	681
<i>Abdulghani Ali Ahmed</i>	
Hardening the Client-Side: A Guide to Enterprise-Level Hardening of Web Browsers	687
<i>Ananth A. Jillepalli, Daniel Conte de Leon, Stu Steiner, Frederick T. Sheldon, and Michael A. Haney</i>	
A Probabilistic Study on the Relationship of Deceptions and Attacker Skills	693
<i>Sharif Hassan and Ratan Guha</i>	
Towards a Real Time Framework for Monitoring IoT Devices for Attack Detection: Vision Paper	699
<i>Rafael I. Bonilla and Cristina L. Abad</i>	

A Metric for Measuring IoT Devices Security Levels	704
<i>Rafael I. Bonilla, Juan J. Crow, Luigi S. Basantes, and Luis G. Cruz</i>	
Electronic Lecture Time-Table Scheduler Using Genetic Algorithm	710
<i>Jumoke Soyemi, John Akinode, and Samson Oloruntoba</i>	
Structural Feature Engineering Approach for Detecting Polymorphic Malware	716
<i>Emmanuel Masabo, Kyanda Swaib Kaawaase, Julianne Sansa-Otim, and Damien Hanyurwimfura</i>	
A Secure and Dependable Connected Smart Home System for Elderly	722
<i>Abdulhameed Alelaiwi, Mohammad Mehedi Hassan, and Md Zakirul Alam Bhuiyan</i>	

2017 IEEE 15th International Conference on Pervasive Intelligence and Computing

PICom Regular Papers

Real-Time Incident Clearance Time Prediction Using Traffic Data from Internet of Mobility Sensors	728
<i>Hamzah Al-Najada and Imad Mahgoub</i>	
VANET Adaptive Beaconing Based on Fuzzy Logic	736
<i>Mohammed Alhameed and Imad Mahgoub</i>	
Investigating the Impact of Adaptive Beaconing on GEOADV Performance	744
<i>Joanne Skiles and Imad Mahgoub</i>	
Deep Spectral-Spatial Feature Extraction Based on DCGAN for Hyperspectral Image Retrieval	752
<i>Lu Chen, Jing Zhang, Xi Liang, Jiafeng Li, and Li Zhuo</i>	
A Weighted MHOF and Sparse Representation Based Crowd Anomaly Detection Algorithm	760
<i>Yujie Chen and Suyu Wang</i>	
Robust Radial Distortion Correction from a Single Image	766
<i>Le Li, Weibin Liu, and Weiwei Xing</i>	
Image Enhancement Based on Spatial Multi-scale Homomorphic Filtering and Local Entropy Guided Image Filtering	773
<i>Sisi Han, Weibin Liu, and Weiwei Xing</i>	
A Novel Method for Human Motion Capture Data Segmentation	780
<i>Ziyi Wu, Weibin Liu, and Weiwei Xing</i>	
EVINCED: Integrity Verification Scheme for Embedded Systems Based on Time and Clock Cycles	788
<i>Cristiano Gurgel de Castro, Sérgio de Medeiros Câmara, Luiz Fernando Rust da Costa Carmo, and Davidson Rodrigo Boccardo</i>	
Green Security Plugin for Pervasive Computing Using the HADAS Toolkit	796
<i>Daniel-Jesus Munoz, José A. Montenegro, Mónica Pinto, and Lidia Fuentes</i>	

A Multisensor Data Fusion Technique for Multiapplication Wireless Sensor Networks Based on Overlapping Intervals	804
<i>Claudio Miceli de Farias and Luci Pirmez</i>	
Optimizing MapReduce Partitioner Using Naive Bayes Classifier	812
<i>Lei Chen, Wei Lu, Liqiang Wang, Ergude Bao, Weiwei Xing, Yong Yang, and Victor Yuan</i>	
Intelligent Subevent Detection Based on Social Network Data	820
<i>Diogo Nolasco Ferreira Sousa and Jonice Oliveira Sampaio</i>	
Self-Adaptive Energy-Efficient Applications: The HADAS Developing Approach	828
<i>Jose Miguel Horcas, Mónica Pinto, Lidia Fuentes, and Nadia Gámez</i>	

PICom Invited Full Papers

A Dimension Reduction Model and Classifier for Anomaly-Based Intrusion Detection in Internet of Things	836
<i>Shengchu Zhao, Wei Li, Tanveer Zia, and Albert Y. Zomaya</i>	
A Multiscale Approach for a Distributed Event-Based Internet of Things	844
<i>Denis Conan, Léon Lim, Chantal Taconet, Sophie Chabridon, and Claire Lecocq</i>	
Quantifying Cloud Elasticity with Container-Based Autoscaling	853
<i>Xuxin Tang, Fan Zhang, Xiu Li, Samee U. Khan, and Zhijiang Li</i>	

PICom Short Papers

An Empirical Study of Power Consumption of Web-Based Communications in Mobile Phones	861
<i>Inmaculada Ayala, Mercedes Amor, Lidia Fuentes, and Daniel Muñoz</i>	
Online Deceptive Product Review Detection Leveraging Word Embedding	867
<i>Xiu Li, Lulu Xie, Fan Zhang, and Huimin Wang</i>	
On Feature Selection for the Prediction of Phishing Websites	871
<i>Wesam Fadheel, Mohamed Abusharkh, and Ikhlas Abdel-Qader</i>	
Ring: Should I Interrupt or Not? — A Mobile Interruption Management System	877
<i>Mohammad Kayes Kaykobad, Praveen Madiraju, and Sheikh Iqbal Ahamed</i>	
A Deep-Learning-Based Floor Detection System for the Visually Impaired	883
<i>Yueng Delahoz and Miguel A. Labrador</i>	

PICom Poster Papers

Curation of Physical Objects in Botany: Architecture and Development of a Linked Open Data-Based Application	889
<i>Marcela Mayumi Mauricio Yagui, Luís Fernando Monsorens Passos Maia, Jonice Oliveira, and Adriana S. Vivacqua</i>	
A Deep Convolutional Network Demodulator for Mixed Signals with Different Modulation Types	893
<i>Xuming Lin, Ruifang Liu, Wenmei Hu, Yameng Li, Xin Zhou, and XiaoXin He</i>	

Threat Evaluation of Aerial Targets in an Air Defense System Using Bayesian Networks	897
<i>José Fernando Basso Brancalion and Karl Heinz Kienitz</i>	

2017 IEEE 3rd International Conference on Big Data Intelligence and Computing

DataCom Regular Papers

DeepCancer: Detecting Cancer via Deep Generative Learning Through Gene Expressions	901
<i>Rajendra Rana Bhat, Vivek Viswanath, and Xiaolin Li</i>	
Using Deep Learning to Predict and Optimize Hadoop Data Analytic Service in a Cloud Platform	909
<i>Chen-Chun Chen, Yu-Tung Hsiao, Chan-Yi Lin, Shihyu Lu, Hsin-Tse Lu, and Jerry Chou</i>	
Understanding Travel Behavior of Private Cars via Trajectory Big Data Analysis in Urban Environments	917
<i>Dong Wang, Qian Liu, Zhu Xiao, Jie Chen, Yourong Huang, and Weiwei Chen</i>	
Team Recognition in Big Scholarly Data: Exploring Collaboration Intensity	925
<i>Shuo Yu, Feng Xia, Kaiyuan Zhang, Zhaolong Ning, Jiaofei Zhong, and Chengfei Liu</i>	
Perldoop2: A Big Data-Oriented Source-to-Source Perl-Java Compiler	933
<i>César Piñeiro, José M. Abuín, and Juan C. Pichel</i>	
Convolutional Filtering for Accurate Signal Timing from Noisy Streaming Data	941
<i>Jonathan Wang, Kesheng Wu, Alex Sim, and Seongwook Hwangbo</i>	
General Time-Dependent Sequenced Route Queries in Road Networks	949
<i>Mohammad H. Ahmadi and Vahid Haghighatdoost</i>	
Analysis and Modeling of Resource Management Overhead in Hadoop YARN Clusters	957
<i>Janardhanan PS Nair and Philip Samuel</i>	
Availability Modeling and Assurance of Map-Reduce Computing	965
<i>Zuqiang Ke and Nohpill Park</i>	
A Data-Driven Resource Allocation Method for Personalized Container Based Desktop as a Service	971
<i>Hyeon-Ji Baek and Eui-Nam Huh</i>	
Repair Duality with Locally Repairable and Locally Regenerating Codes	979
<i>Danilo Gligoroski, Katina Kravevska, Rune E. Jensen, and Per Simonsen</i>	
Efficient Parallel K-Means on MapReduce Using Triangle Inequality	985
<i>Sami Al Ghamdi and Giuseppe Di Fatta</i>	
Facilitating Reproducible Computing via Scientific Workflows for Modelling and Data Integration	993
<i>Yuan Cao and Yao Liang</i>	
A High-Dimensional Outlier Detection Algorithm Base on Relevant Subspace	1001
<i>Zhipeng Gao, Yang Zhao, Kun Niu, and Yidan Fan</i>	

Discriminatively Local Hashing for Preserving Semantic Manifold	1009
<i>Xiaopeng Zhang, Hui Zhang, Rui Liu, Yong Chen, and Zhiwen Ye</i>	
Integrated Discovery of Location Prediction Rules in Mobile Environment	1017
<i>Elahe Naserian, Xinheng Wang, Xiaolong Xu, Yuning Dong, Nektarios Georgalas, and Kaizhu Huang</i>	
Inferring Workflows with Job Dependencies from Distributed Processing Systems Logs	1025
<i>Gladys E. Carrillo and Cristina L. Abad</i>	
Forecasting Stock Prices Using Social Media Analysis	1031
<i>Scott Coyne, Praveen Madiraju, and Joseph Coelho</i>	
Automatically Finding Matches Between Social Media Posts and News Articles	1039
<i>Filipe Fernandes Miranda and Álvaro Pedro de Barros Borges Reis Figueira</i>	
Real-Time Event Search Corresponding to Place and Time Using Social Stream	1047
<i>Ruriko Kudo, Miki Enoki, Akihiro Nakao, Shu Yamamoto, Saneyasu Yamaguchi, and Masato Oguchi</i>	
Contextual Polarity and Influence Mining in Online Social Networks	1054
<i>Hassan Alzahrani, Philippe Duverger, and Nam P. Nguyen</i>	
Analysis of Projected 2024 Employment Based on Current Computer Science Graduates in U.S.	1062
<i>Dejang Liu</i>	
On the Measurement and Analysis of Safety in a Large City	1068
<i>Rami Ibrahim and M. Omair Shafiq</i>	
Optimizing NBA Player Selection Strategies Based on Salary and Statistics Analysis	1076
<i>Ramya Nagarajan and Lin Li</i>	
Online Review Analysis by Visual Feature Selection	1084
<i>Keerthika Koka and Shiao-fen Fang</i>	
Exploring Dynamic Granules for Time-Varying Big Data	1092
<i>Zhengxin Chen</i>	
Scalable Mining and Analysis of Protein-Protein Interaction Networks	1098
<i>Shaikh Arifuzzaman and Bikesh Pandey</i>	
A Time-Delayed Information-Theoretic Approach to the Reverse Engineering of Gene Regulatory Networks Using Apache Spark	1106
<i>Yasser Abdullallah and Jason T. L. Wang</i>	
A Dynamic Power Management Schema for Multi-tier Data Centers	1114
<i>Aryan Azimzadeh and Nasseh Tabrizi</i>	
An Adaptive Initial Cluster Centers Selection Algorithm for High-Dimensional Partition Clustering	1119
<i>Zhipeng Gao, Yidan Fan, Kun Niu, and Ting Wang</i>	
Super-Scalable Computation Framework for Automated Terrain Identification	1127
<i>Yupeng Yan, Manu Sethi, Anand Rangarajan, and Sanjay Ranka</i>	
CENTAURUS: A Cloud Service for K-Means Clustering	1135
<i>Nevena Golubovic, Angad Gill, Chandra Krintz, and Rich Wolski</i>	

Incremental Hybrid SDN Deployment for Enterprise Networks	1143
<i>Ming-Hung Chen, Wei-Min Wang, I-Hsin Chung, and Cheng-Fu Chou</i>	
DR-Update: A Dual-Level Relay Scheme in Erasure-Coded Storage Systems for Balanced Updates	1150
<i>Mingzhu Deng, Songping Yu, Nong Xiao, Fang Liu, and Zhiguang Chen</i>	
PTree: Direct Lookup with Page Table Tree for NVM File Systems	1160
<i>Jianqiang Zeng, Nong Xiao, Fang Liu, Lingyu Zhu, Yang Li, Yuxuan Xing, and Shuo Li</i>	
Existing and Relevant Methodologies for Energy Efficient Cloud Data Centers	1168
<i>Sanjay Patel and Ramji M. Makwana</i>	
A Scalable Fair Heterogeneous Resource Allocation Scheme in Distributed Systems	1174
<i>Xiaoying Zheng and Ye Xia</i>	
Promoting MLC STT-RAM for the Future Persistent Memory System	1180
<i>Xunchao Chen, Jun Wang, and Jian Zhou</i>	
File System for Non-volatile Main Memories: Performance Testing and Analysis	1186
<i>Yang Li, Fang Liu, Nong Xiao, Songping Yu, Shuo Li, and Yuxuan Xing</i>	
Predicting Hospital Length of Stay Using Neural Networks on MIMIC III Data	1194
<i>Thanos Gentimis, Ala' J. Alnaser, Alex Durante, Kyle Cook, and Robert Steele</i>	
Distributed Algorithm for Geographic Opportunistic Routing in VANETs at Road Intersection	1202
<i>Debasis Das</i>	

DataCom Invited Full Papers

Mixture Self-Paced Learning for Multi-view K-Means Clustering	1210
<i>Hong Yu, Yahong Lian, Xiujuan Xu, and Xiaowei Zhao</i>	
Combining Weather Condition Data to Predict Traffic Flow: A GRU Based Deep Learning Approach	1216
<i>Da Zhang and Mansur R. Kabuka</i>	
An Online-Offline Combined Big Data Mining Platform	1220
<i>Weishan Zhang, Hao Lv, Liang Xu, Yan Liu, Xin Liu, Qinghua Lu, Zhongwei Li, and Jiehan Zhou</i>	
Attribute-Based Partner Updating Boosts Cooperation in Social P2P Systems	1226
<i>Linlin Tian, Mingchu Li, Hong Yu, and Xing Jin</i>	
A Modified Node2vec Method for Disappearing Link Prediction	1232
<i>Lu Li, Wei Wang, Shuo Yu, Liangtian Wan, Zhenzhen Xu, and Xiangjie Kong</i>	

DataCom Short Papers

Review on HDD-Based, SSD-Based and Hybrid Key-Value Stores	1236
<i>Juan Li, Nong Xiao, Yutong Lu, Zhiguang Chen, Fang Liu, Yuxuan Xing, and Shuo Li</i>	
Application of Logistic Regression in Assessing Stock Performances	1242
<i>Usha Ananthakumar and Ratul Sarkar</i>	

DeepSim: Cluster Level Behavioral Simulation Model for Deep Learning	1248
<i>Yuankun Shi, Kevin Long, Kaushik Balasubramanian, Bianny Bian, Adam Procter, and Ramesh Illikkal</i>	
Intelligent Perioperative System: Towards Real-Time Big Data Analytics in Surgery Risk Assessment	1254
<i>Zheng Feng, Rajendra Rana Bhat, Xiaoyong Yuan, Daniel Freeman, Tezcan Baslanti, Azra Bihorac, and Xiaolin Li</i>	
Seed Node Distribution for Influence Maximization in Multiple Online Social Networks	1260
<i>Soham Das</i>	
Effective Mobile Notification Recommendation Using Social Nature of Locations	1265
<i>Prasanta Saikia and James She</i>	
Building a Semi-Supervised Dataset to Train Journalistic Relevance Detection Models	1271
<i>Nuno Ricardo Pinheiro da Silva Guimarães, and Álvaro Pedro de Barros Borges Reis Figueira</i>	
Developing Adaptive Islamic Law Business Processes Models for Islamic Finance and Banking by Text Mining the Holy Qur'an and Hadith	1278
<i>Munir Majdalawieh, Farhi Marir, and Issam Tiemsani</i>	
DataCom Poster Papers	
A Big Aurora Data Management Framework Toward Aurora Classification	1284
<i>Yuhang Wang, Hui Zhao, Xian Zhang, and Jimin Liang</i>	
Towards the Design of a System and a Workflow Model for Medical Big Data Processing in the Hybrid Cloud	1288
<i>Yong-Hyun Kim and Eui-Nam Huh</i>	
Mining the Statistical Information of Confidential Data from Noise-Multiplied Data	1292
<i>Yan-Xia Lin</i>	
Orientation in Conceptual Modeling Frameworks	1298
<i>Sabah Al-Fedaghi and Haya Alahmad</i>	
BLE Tree Networks for Sensor Devices in Internet of Things	1304
<i>Sheng-De Wang and Kuan-Jung Chiang</i>	
A Parallel Majority Learning Algorithm for Anomaly Detection	1310
<i>Shin-Ying Huang, Ya-Yun Peng, and Fang Yu</i>	
Automation of Fact-Checking: State of the Art, Obstacles and Perspectives	1314
<i>Edouard Ngor Sarr and Ousmane Sall</i>	
Deep Convolutional Neural Network for Facial Expression Recognition Using Facial Parts	1318
<i>Lucy Nwosu, Hui Wang, Jiang Lu, Ishaq Unwala, Xiaokun Yang, and Ting Zhang</i>	

Extension of Semantic Based Urdu Linguistic Resources Using Natural Language Processing	1322
<i>Komal Khalid, Hammad Afzal, Faiza Moqaddas, Naima Iltaf, Ahmed Muqeem Sheri, and Raheel Nawaz</i>	

Author Index