2018 4th International Conference on Big Data Computing and Communications (BIGCOM 2018)

Chicago, Illinois, USA 7-9 August 2018



IEEE Catalog Number: CFP18N32-POD ISBN: 978-1-5386-8022-3

Copyright \odot 2018 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:
 CFP18N32-POD

 ISBN (Print-On-Demand):
 978-1-5386-8022-3

 ISBN (Online):
 978-1-5386-8021-6

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



2018 4th International Conference on Big Data Computing and Communications BIGCOM 2018

Table of Contents

BIGCOM 2018 Conference Organization xii
Session 1: Wireless Networks and Wireless Signal
Signal Tracking Using Commodity WiFi .1
Adaptive Coupling Model of Time Synchronization and Topology Control in Large-Scale Wireless Sensor Networks .9
Zhaobin Liu (Suzhou Vocational University), Wenzhi Liu (Suzhou Vocational University), Qiang Ma (Tsinghua University), Gang Liu (Suzhou Vocational University), and Ligang Fang (Suzhou Vocational University)
On Measurement of the Spatio-Frequency Property of OFDM Backscattering .1.7. Xiaoxue Zhang (University of Science and Technology of China), Nanhuan Mi (University of Science and Technology of China), Xin He (Anhui Normal University), and Panlong Yang (University of Science and Technology of China)
Global Wi-Fi Positioning Method Based on Online Clustering Algorithm .22. Jiaxuan Wu (Northeastern University of China) and Yunfei Feng (Iowa State University)
Outage Probability Analysis of Decode-and-Forward Relaying Systems with Energy Harvesting .28 Gefan Cheng (Anhui Normal University), Hao Sun (Anhui Normal University), Xin He (University of Science and Technology of China), Weiwei Jiang (Tokyo University), Xiaobo Zhou (Tianjin University), Meng Cheng (Huawei Technologies Co. Ltd.), and Panlong Yang (University of Science and Technology of China)

Session 2: Systems and Pattern Recognition (I)

Charles Roland Haruna (University of Electronic Science and Technology of China), MengShu Hou (University of Electronic Science and Technology of China), Rui Xi (University of Electronic Science and Technology of China), Michael Y. Kpiebaareh (University of Electronic Science and Technology of China), Lawrence Tandoh (University of Electronic Science and Technology of China,), and Barbie Eghan-Yartel (University of Cape Coast, Ghana)	•••
Adaptive Compressed Classification for Energy Efficient Activity Recognition in Wireless Body Sensor Networks .41	•••
A Framework for Enhancing Word Embeddings with Task-Specific Information .46. Xuan Zhang (Beijing University of Posts and Telecommunications), Chunhong Zhang (Beijing University of Posts and Telecommunications), Chenchen Guo (Beijing University of Posts and Telecommunications), and Yang Ji (Beijing University of Posts and Telecommunications)	••
Real Time Object Detection Based on FPGA with Big Data .54. Peiyue Zhang (Beijing Information Science and Technology University), Zhan Xu (Beijing Information Science and Technology University), Pengcheng Liu (Beijing Information Science and Technology University), Yiyang Zhao (Simpleedu Co.), Lian Wang (Simpleedu Co.), Yuntao Ma (Simpleedu Co.), and Jian Wang (Simpleedu Co.)	
Session 3: Systems and Pattern Recognition (II)	
Session 3: Systems and Pattern Recognition (II) Demand Estimation of Public Bike-Sharing System Based on Temporal and Spatial Correlation .60 Xiawen Yao (Hangzhou Dianzi University), Xingfa Shen (Hangzhou Dianzi University), Tian He (University of Minnesota, Twin Cities), and Sang Hyuk Son (Daegu Gyeongbuk Institute of Science and Technology)	•••
Demand Estimation of Public Bike-Sharing System Based on Temporal and Spatial Correlation .60 Xiawen Yao (Hangzhou Dianzi University), Xingfa Shen (Hangzhou Dianzi University), Tian He (University of Minnesota, Twin Cities), and Sang	
Demand Estimation of Public Bike-Sharing System Based on Temporal and Spatial Correlation .60 Xiawen Yao (Hangzhou Dianzi University), Xingfa Shen (Hangzhou Dianzi University), Tian He (University of Minnesota, Twin Cities), and Sang Hyuk Son (Daegu Gyeongbuk Institute of Science and Technology) Supervision of Webcasting-Anchor Behavior Evaluation Based on Barrage Emotion Analysis .66 Chunlei Zhao (Tianjin University of Technology), Yunlong Li (Tianjin University of Technology), Ruiqi Hong (Tianjin University of Technology), Jian Zhang (Tianjin University of Technology), and	•••

Session 4: Security and Privacy (I)

Wenchao Huang (University of So Miao (University of Science and T (University of Science and Techn	ests in Android Applications .84 cience and Technology of China), cience and Technology of China), Fuyou Fechnology of China), and Yan Xiong ology of China)
Adversarial Attack? Don't Panic .90 Feixia Min (Beijing University of F Xiaofeng Qiu (Beijing University of Fan Wu (Beijing University of Pos	Posts and Telecommunications), of Posts and Telecommunications), and
Jianmeng Huang (University of S Wenchao Huang (University of So	· · · · · · · · · · · · · · · · · · ·
Hongbing Yan (University of Scie Xiong (University of Science and (University of Science and Techn	nsitive Data Usage in Android Applications 1.02
Session 5: Security and I	Privacy (II)
A Privacy Enforcement Framework fo Instrumentation .108 Lei Qin (University of Science and (University of Science and Techn	r Android Systems Using Symbolic Execution-Based d Technology of China), Yan Xiong ology of China), Wenchao Huang ology of China), and Zhaoyi Meng
A Privacy Enforcement Framework for Instrumentation .1.08	r Android Systems Using Symbolic Execution-Based d Technology of China), Yan Xiong ology of China), Wenchao Huang ology of China), and Zhaoyi Meng ology of China) uity of Protected Modules 114 and Technology of China), Xiong Yan ology of China), and Wenchao Huang
A Privacy Enforcement Framework for Instrumentation .1.08	r Android Systems Using Symbolic Execution-Based d Technology of China), Yan Xiong ology of China), Wenchao Huang ology of China), and Zhaoyi Meng ology of China) uity of Protected Modules .1.14

Session 6: Machine Learning and Algorithm

Deep Learning Based Parking Prediction on Cloud Platform .1.32 Jiachang Li (Beijing University of Posts and Telecommunications), Jiming Li (Beijing University of Posts and Telecommunications), and Haitao Zhang (Beijing University of Posts and Telecommunications)
Computing Platforms for Big Data Analytics in Electric Vehicle Infrastructures .1.38. Md Muzakkir Hussain (Aligarh Muslim University), M.M. Sufyan Beg (Aligarh Muslim University), Mohammad Saad Alam (Aligarh Muslim University), Mahesh Krishnamurthy (Illinois Institute of Technology), and Qazi Mazhar Ali (Aligarh Muslim University)
Low-Rank Tensor Estimation via Generalized Norm/Quasi-Norm Difference Regularization .1.44 Yi Cen (Minzu University of China), Yigang Cen (Beijing Jiaotong University), Ke Wang (Beijing University of Posts and Telecommunications), Jincong Li (Minzu University of China), Shiming Chen (East China Jiaotong University), Linnan Zhang (Guizhou University), and Dan Tao (Beijing Jiaotong University)
Tarot: A General Aggregation Model under Performance Variations .150
Building Sentiment Lexicon with Representation Learning Based on Contrast and Label of
Sentiment .1.56
Session 7: Datacenter and Edge Computing
SFNet: A VLC Enabled Hybrid Network Structure for Data Centers .162
Spatiotemporal Cyberspace Situation Awareness Mechanism for Backbone Networks .1.68
Automatic Matching Method for Ocean Observation Elements Based on Edge Computing .1.74 Zhijin Qiu (Qilu University of Technology), Tong Hu (Qilu University of Technology), Suiping Qi (Qilu University of Technology), Shiyong Liu (Ocean University of China), Xupeng Wang (Ocean University of China), and Zhongwen Guo (Ocean University of China)
A Flexible Resource Allocation Mechanism with Performance Guarantee in Cloud Computing .1.8.1 Meixuan Li (Soochow University), Yu-e Sun (Soochow University), He Huang (Soochow University), and Jingmei Cui (Soochow University)

Geo-Edge: Geographical Resource Allocation on Edge Caches for Video-on-Demand Streaming .189 Yuanxing Zhang (Peking University), Kaigui Bian (Peking University), Hu Tuo (iQIYI Co., Ltd.), Bin Cui (Peking University), Lingyang Song (Peking University), and Xiaoming Li (Peking University)

Session 8: Systems and Architecture

Qin (University of Minnesota Twin Cities)

The Read Amplification Analysis of NoSQL Database on Top of OSDs: A Case Study of HBase .20.7 Shiyong Liu (Ocean University of China and University of Minnesota Twin Cities), Zhongwen Guo (Ocean University of China), Chen Liu (Ocean University of China), Xupeng Wang (Ocean University of China and University of Minnesota Twin Cities), Guohua Wang (South China University of Technology and University of Minnesota Twin Cities), Zhijin Qiu (Qilu University of Technology), and Xukun Qin (University of Minnesota Twin Cities)

Twin Cities), Zhijin Qiu (Qilu University of Technology), and Xukun

Session 9: Network Economics

University), Xiaozhe Xin (Tsinghua University), and Yunhao Liu (Tsinghua University)
Research and Implementation of a Brand Normalization Method across E-Commerce Platforms 2 Lan Yao (Northeastern University of China), Zhuang Li (Northeastern University of China), Tiezheng Nie (Northeastern University of China), and Zhibin Zhao (Northeastern University of China)