

# **2017 International Conference on Network and Information Systems for Computers (ICNISC 2017)**

**Shanghai, China  
14 – 16 April 2017**



**IEEE Catalog Number: CFP17B68-POD  
ISBN: 978-1-5386-1619-2**

**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:	CFP17B68-POD
ISBN (Print-On-Demand):	978-1-5386-1619-2
ISBN (Online):	978-1-5386-1618-5

**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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

# 2017 International Conference on Network and Information Systems for Computers (ICNISC) **ICNISC 2017**

## Table of Contents

Preface	xii
Conference Organization	xiii
Program Committee	xiv
Keynotes	xv

## Computer Network

Multiple Passive Sensor Multi-Target Tracking Based on Multidimensional Assignment	1
<i>Shi-Zhe Bu (Harbin Institute of Technology) and Gong-Jian Zhou (Harbin Institute of Technology)</i>	
Research on Bearer Network of Dual-Homed Soft-Switch System	6
<i>Yun Lan (Beijing Aerospace Control Center), Yong Sun (Beijing Aerospace Control Center), Sheng-Peng Liu (Beijing Space Information Relay and Transmission Technology Research Center), and Qian Zhang (Beijing Aerospace Control Center)</i>	
Compact Multi-Layered Wideband Bandpass Filter with Multiple Transmission Zeros	11
<i>De-Cheng Gan (Institute of Electric Engineering, UESTC), Song-Bai He (Institute of Electric Engineering, UESTC), Zhi-Jiang Dai (Institute of Electric Engineering, UESTC), Tian Qi (Institute of Electric Engineering, UESTC), and De-Cheng Gan (YiBin University)</i>	
Resource Allocation Algorithm of Velocity Estimation for MIMO Radar	15
<i>Liu-Yang Gao (Luoyang Electronic Equipment Testing Center), Jian-Feng Feng (Luoyang Electronic Equipment Testing Center), Ming-Zhong Liu (Luoyang Electronic Equipment Testing Center), and Wen-Jun Li (Luoyang Electronic Equipment Testing Center)</i>	
An Improved DV-Hop Localization Algorithm for Wireless Sensor Network Based on TDOA Quantization	19
<i>Qing Tang (National University of Defense Technology, Changsha) and Jian Wang (National University of Defense Technology, Changsha)</i>	
Construction of Maximal Entanglement EAQECs of Distance 4 from Caps in Projective Space $PG(r,4)$	25
<i>Qiang Fu (Air Force Engineering University, Xi'an), Rui-Hu Li (Air Force Engineering University, Xi'an), Liang-Dong Lv (Air Force Engineering University, Xi'an), and Yang Liu (Air Force Engineering University, Xi'an)</i>	

Comparative Handover Performance Analysis of MIPv6 and FMIPv6 in LEO Satellite Networks .30.....	Guoqiang Su (National University of Defense Technology, Changsha), Peng You (National University of Defense Technology, Changsha), and Shaowei Yong (National University of Defense Technology, Changsha)
OFMON: An Adaptive Flow Monitoring Framework for SDN .37.....	Xiaofang Yuan (Hunan University) and Fen Hu (Hunan University)
Dynamic Remote Attestation Service for Virtual Machine on the IaaS Cloud Platform .42.....	Huaizhe Zhou (National University of Defense Technology, Changsha), Haihe Ba (National University of Defense Technology, Changsha), Jiangchun Ren (National University of Defense Technology, Changsha), Yong Chen (National University of Defense Technology, Changsha), Yongjun Wang (National University of Defense Technology, Changsha), and Zhiying Wang (National University of Defense Technology, Changsha)
Joint Task Management in Connected Vehicle Networks by Software-Defined Networking, Computing and Caching .47.....	Yu He (Beijing University of Technology, Beijing), Peng-Bo Si (Beijing University of Technology, Beijing), En-Chang Sun (Beijing University of Technology, Beijing), Yan-Hua Zhang (Beijing University of Technology, Beijing), and Shuo Liu (Beijing University of Technology, Beijing)
Efficiency Evaluation Algorithm of Communication Networks for Energy Internet .51.....	Xiao-Shan Pan (Institute of Microelectronics of Chinese Academy of Sciences), Liang Zhang (Xinzhou Power Supply Company of State Grid Shanxi), and Zi-Guan Zhou (Beijing State Grid Power Technology Co., Ltd)
Research on Fast Networking Technologies Based on Hybrid OFDM Modulation for Cognitive Radio Networks .55.....	Zhi-Hui Ye (Nanjing University of Science and Technology) and Zi-Yan Zhang (Nanjing University of Science and Technology)
Research on Time Slot Allocation Protocols of Ad Hoc Network Based on TDMA .60.....	Zuo-Xue Liu (Academy of Equipment, Beijing) and Rui Jin (Academy of Equipment, Beijing)
An Analysis about the Security of the Current Open Source Cloud Platform .65.....	Tie Hong (National University of Defense Technology, Changsha) and Jiang-Chun Ren (National University of Defense Technology, Changsha)
Improved Method for Frequency Estimation of Chirp Sequence Burst Signals .69.....	Jian-Mei Dai (Academy of Equipment, Beijing) and Hua-Fang Geng (Changping N.C.O School, Academy of Equipment, Beijing)
A New Residual Energy Based Relay Selection in Two-Way Buffer-Aided Relay Networks .72.....	Hanwu Wang (Hunan University) and Beibei Yang (Hunan University)
Routing Table Decomposition in Line Cards with Different Capacity .77.....	Heyang Chen (Capital Normal University), Wen-Long Chen (Capital Normal University), and Shuo Zhang (Capital Normal University)
Wine Quality Evaluation Model Based on Artificial Bee Colony and BP Neural Network .83.....	Hao Huang (Donghua University) and Xiao-Ling Xia (Donghua University)

Dynamic Service Chain Migration for Network Functions Virtualization .88.....	
<i>Li-Jun Xie (National Digital Switching System Engineering and Technological Research and Development Centre, Zhengzhou), Qiao Zhou (National Digital Switching System Engineering and Technological Research and Development Centre, Zhengzhou), and Jian-Yang Huang (National Digital Switching System Engineering and Technological Research and Development Centre, Zhengzhou)</i>	
An Evacuation Model Based on the Improved Particle Swarm Optimization .94.....	
<i>Jing-Long Yang (Beijing University of Technology) and Dong-Zhi He (Beijing University of Technology)</i>	
An Active ZigBee-Based RFID System Reduces IT Uncertain Impact to Firm Performance .99.....	
<i>Long-Fei Chen (NanFang College of Sun Yat-Sen University)</i>	
A New Time Synchronization Method of Ad Hoc Networks Based on Life Cycle .102.....	
<i>Zuo-Xue Liu (Academy of Equipment, Beijing) and Rui Jin (Academy of Equipment, Beijing)</i>	

## Information System

Crowd Segmentation Using SimpleFlow .107.....	
<i>Hai-Yan Yang (Guilin University of Electronic Technology; Wuhan University), Hua-An Zhao (Kumamoto University), and Ping Zhou (University of Electronic Technology, Guilin)</i>	
Comprehensive Rating Model of Douban Movie Based on Sentiment Analysis .111.....	
<i>Yi-Ran Gu (Nanjing University of Posts and Telecommunications) and Yu-Yu Su (Nanjing University of Posts and Telecommunications)</i>	
Friend Recommendation Algorithm Based on Interest Classification with Time Decay .117.....	
<i>Qi Shen (Beijing University of Technology), Hao Zhou (Beijing University of Technology), Shi-Wei Li (Beijing University of Technology), and Zi-Hui Pei (Beijing University of Technology)</i>	
A New Static Vulnerabilities Analysis Algorithm for PHP Codes .122.....	
<i>Xue-Xiong Yan (Institute of Software Chinese Academy of Sciences) and Heng-Tai Ma (Institute of Software Chinese Academy of Sciences)</i>	
Local Linear Dimensionality Reduction Algorithm Based on Nonlinear Manifolds Decomposition .126.....	
<i>Zi-Hui Pei (Beijing University of Technology) and Qi Shen (Beijing University of Technology)</i>	
A Comprehensive Analysis Method of Application in College Entrance Examination .131.....	
<i>Yun-Xiang Li (JinLing High School, NanJing), Yi-Ning Miao (JinLing High School, NanJing), and Shi-Yang Lue (JinLing High School, NanJing)</i>	
Assessment Model of Command Information System Security Situation Based on Twin Support Vector Machines .135.....	
<i>Liang-Liang Shi (Air Force Engineering University, Xi'an) and Jian Chen (Air Force Engineering University, Xi'an)</i>	

Entity Extraction of Customs Clearance Data Based on CRF and Specific Rules .140.....	<i>Yong-Bin Xu (East China University of Science and Technology), Yi Guo (East China University of Science and Technology; School of Information Science and Technology, Shihezi University), Zhi-Hong Wang (East China University of Science and Technology), and Wei Sun (East China University of Science and Technology)</i>
Design of Crack Detection System .147.....	<i>Xiu-Zhi Yang (Hubei Polytechnic University) and Zhi-Quan Zhou (Hubei Polytechnic University)</i>
Mobility Innovation through an Efficient Mobile System for Bike Sharing on Campus .153.....	<i>Hai-Bo Yi (Shenzhen Polytechnic) and Zhe Nie (Shenzhen Polytechnic)</i>
Fuzzy TOPSIS Approach Based on Axiomatic Fuzzy Set for Assessing Thermal-Energy Storage in Concentrated Solar Power (CSP) Systems .158.....	<i>Li-Li Tao (Dalian Ocean University), Yun-Ying Dong (Dalian Ocean University), Li-Yan Qi (Dalian Ocean University), and Si-Yang Lv (Dalian Shiningway International Trade Co., Ltd)</i>
The Snapshot View Analysis for Continuous Data Protection .163.....	<i>Yong Cheng (National University of Defense Technology, Changsha), Huaizhe Zhou (National University of Defense Technology, Changsha), Jiangjiang Wu (National University of Defense Technology, Changsha), Jun Ma (National University of Defense Technology, Changsha), and Zhiying Wang (National University of Defense Technology, Changsha)</i>
Research of a Data Flow Test Method for Attribute-Based Access Control Systems .167.....	<i>Yun-Peng Zhang (University of Houston), Bei-Bei Zhang (College of Software and Microelectronics Northwestern Polytechnical University Xi'an), and Zhi-Wen Wang (College of Software and Microelectronics Northwestern Polytechnical University Xi'an)</i>
Design of Key Space Based on CPRS Algorithm .172.....	<i>Dan Cai (Nanjing University), Xiao-Yong Ji (Nanjing University), and Wei-Qi Jin (Nanjing University)</i>
A Multi-Video Vehicle Tracking Method Based on Camshift with Color Interference .176.....	<i>Lu-Qi Xu (Wuhan University of Technology) and Xian-Qiao Chen (Wuhan University of Technology)</i>
A Software System Model Based on Dynamic Self-Monitor .181.....	<i>Li-Juan Zhang (Shenzhen Polytechnic) and Xi-Sheng Zhang (Shenzhen Polytechnic)</i>
Automatic In-Memory Fuzzing with the Assistance of Taint Flow Analysis .185.....	<i>Gang Yang (National University of Defense Technology, Changsha), Chao Feng (National University of Defense Technology, Changsha), Xing Zhang (National University of Defense Technology, Changsha), and Chao-Jing Tang (National University of Defense Technology, Changsha)</i>
Collaborative Recommendation Algorithm Based on Semi-Supervised Learning .189.....	<i>Si-Qi Jiang (Hunan University ChangSha), Yu-Feng Liu (Hunan University ChangSha), Yu-Xin Zhou (Hunan University ChangSha), and Huan-Huan Zhi (Hunan University ChangSha)</i>
Software Support and Test of Software-Intensive Systems .195.....	<i>Hua-Fang Geng (Changping N.C.O School, Academy of Equipment, Beijing) and Jian-Mei Dai (Academy of Equipment, Beijing)</i>

Study on the Economic Evaluation Model of Wind, Solar and Energy Storage Combined Power Generation Unit .199.....	<i>Xiao-Jing Wei (State Grid Corporation of China) and Qiong Lu (North China Electric Power University)</i>
Investing in the IOT-Based Deep Learning that Makes a Competitive Difference: An Industrial View .205.....	<i>Long-Fei Chen (NanFang College of Sun Yat-Sen University GuangZhou)</i>
Efficient VM Memory Balancing Algorithm Design and Implementation .208.....	<i>Fang Liu (Huazhong University of Science and Technology) and Basheer A. Hassoon (Huazhong University of Science and Technology)</i>
Research on Construction of Informationization Management System After "the Replacement of the Business Tax with a Value-Added Tax" of Construction Industry .214.....	<i>Jing-Qiu Yang (Jilin Engineering Normal University Changchun) and Yan-Li Wang (Jilin Engineering Normal University Changchun)</i>

## Data Processing and Data Mining

Integration of Real-Time Air Pollution Analysis and Mapping Based on Multisource Data .218.....	<i>Chen Chen (University of Electronic Science and Technology of China), Qiang Liu (University of Electronic Science and Technology of China), Pei-Wen Liu (University of Electronic Science and Technology of China), Yao-Sen Huang (University of Electronic Science and Technology of China), Wei-Qing Li (University of Electronic Science and Technology of China), and Hao Luo (The Third Geographical Information Mapping Institute National Surveying and Mapping Geographic Information Bureau)</i>
The Improved Algorithm for Identifying the Vehicle Road Adhesion Coefficient .222.....	<i>Fei Gao (Inner Mongolia University Hohhot), Yun-Cen Zhao (Inner Mongolia University Hohhot), Lu Zhang (Inner Mongolia University, China; Agricultural University Hohhot), and Guo-Ye Wang (Vehicle and Traffic Engineering Department College of Engineering China Agricultural University Beijing)</i>
Community Detection and Location Recommendation Based on LBSN .227.....	<i>Chang Su (Chongqing University of Posts and Telecommunications Chongqing), Xiao-Tao Jia (Chongqing University of Posts and Telecommunications Chongqing), Xian-Zhong Xie (Chongqing University of Posts and Telecommunications), and Ning Li (Chongqing University of Posts and Telecommunications)</i>
Design and Implementation of Real-Time Storage Technology for Mass Satellite Remote Sensing Data .232...	<i>Zheng Zhou (National University of Defense Technology, Changsha), Zhi-Nong Zhong (National University of Defense Technology, Changsha), Jun Li (National University of Defense Technology, Changsha), and Jiang-Jiang Wu (National University of Defense Technology, Changsha)</i>
The Data Crawling and Hotspot Analyze of Social Q&A Site .237.....	<i>Rui-Hui Jia (Shanghai Jiao Tong University)</i>
Real-Time Traffic Accident Severity Prediction Using Data Mining Technologies .242.....	<i>Xiao-Ling Xia (Donghua University Shanghai), Bing Nan (Donghua University Shanghai), and Cui Xu (Donghua University Shanghai)</i>

- Data Storage Method of Meteorological Satellite Ground Application System Based on Object Storage .246....  
*Lan Wei (National Satellite Meteorological Centre Beijing), Man-Yun Lin (National Satellite Meteorological Centre Beijing), Xian-Gang Zhao (National Satellite Meteorological Centre Beijing), Li-Zi Xie (National Satellite Meteorological Centre Beijing), Peng Guo (National Satellite Meteorological Centre Beijing), and Cun-Qun Fan (National Satellite Meteorological Centre Beijing)*
- Water Level Prediction Based on Polyelement Correlation Analysis and Improved BP Neural Network .250....  
*Hong-Peng Sun (Donghua University Shanghai), Xiao-Ling Xia (Donghua University Shanghai), Jia-Jin Le (Donghua University Shanghai), and Hao Huang (Donghua University Shanghai)*

## Signal and Informatics Processing

- A Binary SIFT Matching Method Combined with the Color and Exposure Information .254.....  
*Ming-Zhe Su (College of Information, Mechanical and Electrical Engineering Shanghai; Normal University Shanghai), Yan Ma (College of Information, Mechanical and Electrical Engineering Shanghai; Normal University Shanghai), Xiang-Fen Zhang (College of Information, Mechanical and Electrical Engineering Shanghai; Normal University Shanghai), Shun-Bao Li (College of Mathematics & Science Shanghai Normal University Shanghai), and Yu-Ping Zhang (College of Information, Mechanical and Electrical Engineering Shanghai; Normal University Shanghai)*
- Application of Switching Median Filter in Two-Dimensional Otsu Image Segmentation .258.....  
*Han-Min Ye (University of Technology Guilin), Shi-Li Yan (University of Technology Guilin), and Xue Bai (University of Technology Guilin)*
- Going Deeper with CKELM .262.....  
*Yang Fang (East China Normal University, Shanghai) and Wen-Xin Hu (East China Normal University, Shanghai)*
- Exposing Image Forgery Using Lambert Model and Shadows .267.....  
*Yang-Yu Hou (Donghua University, China; Engineering Research Center of Digitized Textile & Fashion Technology, Ministry of Education Shanghai), Hua-Yong Ge (Donghua University, China; Engineering Research Center of Digitized Textile & Fashion Technology, Ministry of Education Shanghai), Shu-Juan Fang (Donghua University, China; Engineering Research Center of Digitized Textile & Fashion Technology, Ministry of Education Shanghai), and Cai-Xia Xu (Donghua University, China; Engineering Research Center of Digitized Textile & Fashion Technology, Ministry of Education Shanghai)*
- Three Dimensional Image Reconstruction Based on Normalized Convolution Algorithm of SIFT .272.....  
*Hai-Yang Zou (China West Normal University NanChong) and Jian-Qing Gao (Fu Jian Jiang Xia University FuZhou)*
- UAV Flight at Low Altitude Based on Binocular Vision .277.....  
*Feng Wang (Jilin University)*
- Multi-User and Multi-View Human Eyes' Detection and Tracking .281.....  
*Tao Yu (Xi'an Jiaotong University), Jian-Hua Zou (Xi'an Jiaotong University), and Qin-Bao Song (Xi'an Jiaotong University)*



<b>Author Index</b>	<b>287</b>	.....
---------------------	------------	-------