## 2018 IEEE Third International Conference on Data Science in Cyberspace DSC 2018

## **Table of Contents**

Message from the General Chairs	XXV
Conference Organization	xxvi
Program Committee	xxx
Reviewers	XXXV
Main Conference - IEEE International Conference on Da Cyberspace	ata Science in
A Position-Based Secure Fast Handover Mechanism for High-Speed Trains Yue Zhao (Science and Technology on Communication Security Laboratory, China), Zhouguo Chen (Science and Technology on Communication Security Laboratory, China), Hong Su (The Thirtieth Research Institute of China Electronic Technology Group Corporation, China), Enbo Sun (The Thirtieth Research Institute of China Electronic Technology Group Corporation, China), Yubin Guo (The Thirtieth Research Institute of China Electronic Technology Group Corporation, China), and Jianwei Ding (Science and Technology on Communication Security Laboratory, China)	1
The Research about Public Sentiment Differences between the Belt and Road Countries.	
Fulian Yin (Communication University of China), Yiming Ma	
(Communication University of China), Congcong Zhang (Communication	
University of China), and Jinbao Song (Communication University of China)	
The Social Negative Mood Index for Social Networks	
Rui Jin (Harbin Institute of Technology, China), Hong-Li Zhang (Harbin Institute of Technology, China), and Yu Zhang (Harbin Institute of	
Technology, China)	
Deep CNN-Based Methods to Evaluate Neighborhood-Scale Urban Valuation Through Perception	
Junhan Zhao (Purdue University), Xiang Liu (Purdue University), Yanqun Kuang (Purdue University), Yingjie Victor Chen (Purdue University), and Baijian Yang (Purdue University)	

Identity-Based Blind Proxy Re-Signature Scheme for Data Security  Xiaodong Yang (Northwest Normal University Lanzhou, China), Likun Xiao (Northwest Normal University Lanzhou, China), Yutong Li (Northwest Normal University Lanzhou, China), Shudong Li (Guangzhou University Guangzhou, China), Jinli Wang (Northwest Normal University Lanzhou, China), and Chunlin Chen (Northwest Normal University Lanzhou, China)	28
The Real Time Gait Phase Detection Based on Long Short-Term Memory  Zhen Ding (Harbin Institute of Technology, China), Chifu Yang (Harbin Institute of Technology, China), Kai Xing (Nanjing General Hospital of Nanjing Military Command, China), Xueyan Ma (Nanjing General Hospital of Nanjing Military Command, China), Kai Yang (Nanjing General Hospital of Nanjing Military Command, China), Hao Guo (Harbin Institute of Technology Harbin, China), ChunZhi Yi (Harbin Institute of Technology, China), and Feng Jiang (Nanjing General Hospital of Nanjing Military Command, China)	33
Topic Analysis Model for Online Social Network  Yan Jia (National University of Defense Technology, China), Lu Deng (National University of Defense Technology, China), Bin Zhou (National University of Defense Technology, China), Binxing Fang (Chinese Academy of Sciences, China), Weihong Han (Guangzhou University, China), Aiping Li (National University of Defense Technology, China), Qiang Liu (National University of Defense Technology, China), and Yong Quan (National University of Defense Technology, China)	39
Fast Top-k Area Topics Extraction with Knowledge Base  Fang Zhang (Tsinghua University, Beijing), Xiaochen Wang (Tsinghua  University, Beijing), Jingfei Han (Beihang University, China), Jie  Tang (Tsinghua University, Beijing), and Shiyin Wang (Tsinghua  University, Beijing)	45
The Coming Era of AlphaHacking?: A Survey of Automatic Software Vulnerability Detection,  Exploitation and Patching Techniques	53
Virtual Community Detection Model and Related Research in Online Social Networks  Yan Jia (National University of Defense Technology, China), Qiang Liu (National University of Defense Technology, China), Binxing Fang (Beijing University of Posts and Telecommunications Beijing, China), Bin Zhou (National University of Defense Technology, China), Lu Deng (National University of Defense Technology, China), and Yong Quan (National University of Defense Technology, China)	61
Question Classification Based on MAC-LSTM	69

Toward Predicting Communication Effectiveness	76
Generic Generating Functions for the Counting Functions of Quadratic Functions with Prescribed Walsh	0.1
Spectrum  Xiaolong Yang (Key Laboratory of Electromagnetic Space Information,  CAS University of Science and Technology of China), Mengce Zheng (Key  Laboratory of Electromagnetic Space Information, CAS University of  Science and Technology of China), and Honggang Hu (Key Laboratory of  Electromagnetic Space Information, CAS University of Science and  Technology of China)	, 0 <del>1</del>
Urban Road Congestion Condition Discrimination Research Based on Vector Features  Ding Zhingming (Beijing University of Technology), Ren Fujie (Beijing University of Technology), Cai Zhi (Beijing University of Technology), and Cao Yang (Beijing University of Technology)	92
ULE: Learning User and Location Embeddings for POI Recommendation  Hao Wang (Institute of Computing Technology, Chinese Academy of Sciences, Beijing, China; University of Chinese Academy of Sciences, Beijing, China), Wentao Ouyang (Institute of Computing Technology, Chinese Academy of Sciences, Beijing, China), Huawei Shen (Institute of Computing Technology, Chinese Academy of Sciences, Beijing, China; University of Chinese Academy of Sciences, Beijing, China), and Xueqi Cheng (Institute of Computing Technology, Chinese Academy of Sciences, Beijing, China; University of Chinese Academy of Sciences, Beijing, China)	. 99
Reasoning about Cloud Storage Systems  Hanpin Wang (Peking University), Zhao Jin (Peking University), Lei Zhang (Peking University), Yuxin Jing (Peking University), Yuxin Jing (Peking University), and Yongzhi Cao (Peking University)	107
TigerAware: An Innovative Mobile Survey and Sensor Data Collection and Analytics System	115
JMS: Joint Bandwidth Allocation and Flow Assignment for Transfers with Multiple Sources  Geng Li (Tongji University, China), Yichen Qian (Tongji University, China), Lili Liu (Tsinghua University, Beijing), and Y. Richard Yang (Yale University)	123
Neural Network Based Clinical Treatment Decision Support System for Co-existing Medical Conditions  Yichun Duan (Peking University), Guopeng Zhou (Peking University First  Hospital), Yuanxing Zhang (Peking University), Zhaoqian Lan (Peking  University), Chunhua Chi (Peking University First Hospital), and Wei  Yan (Peking University)	131

Multi-level Composite Neural Networks for Medical Question Answer Matching  Dong Ye (National University of Defense Technology, China), Sheng  Zhang (National University of Defense Technology, Changsha, P. R.  China), Hui Wang (National University of Defense Technology, China),  Jiajun Cheng (National University of Defense Technology, China), Xin  Zhang (National University of Defense Technology, China), Zhaoyun Ding  (National University of Defense Technology, China), and Pei Li  (National University of Defense Technology, China)	. 139
A Robust Change-Point Detection Method by Eliminating Sparse Noises from Time Series  Kun Qin (Beijing Institute of Technology), Lei Sun (Beijing Institute  of Technology), Bo Liu (DBAPPSecurity Ltd), Yuan Fan (DBAPPSecurity  Ltd), and Kar-Ann Toh (Yonsei University Seoul)	. 146
Webshell Detection Based on Random Forest–Gradient Boosting Decision Tree Algorithm	. 153
Structural Brain Network Mining Based on Core Theory	161
Privacy-Aware Personal Information Propagation Management in Social Networks  Yu Wu (Shanghai Jiaotong University, China) and Li Pan (Shanghai  Jiaotong University, China)	. 169
Traffic Status Evaluation Based on Possibilistic Fuzzy C-Means Clustering Algorithm	. 175
SLBot: A Serverless Botnet Based on Service Flux  Di Wu (Institute of Information Engineering, Chinese Academy of Sciences, China), Binxing Fang (Guangzhou University), Jie Yin (Guangzhou University, China), Fangjiao Zhang (Institute of Information Engineering, Chinese Academy of Sciences, China), and Xiang Cui (Guangzhou University, China)	. 181
A Data Storage Method Based on Blockchain for Decentralization DNS  Jingqiang Liu (Institute of Information Engineering, Chinese Academy of Sciences, China), Bin Li (Harbin Institute of Technology, China), Lizhang Chen (Harbin Institute of Technology, China), Meng Hou (Harbin Institute of Technology, China), Feiran Xiang (Harbin Institute of Technology, China), and Peijun Wang (Harbin Institute of Technology, China)	. 189
Micro-Honeypot: Using Browser Fingerprinting to Track Attackers  Zhaopeng Jia (Beijing University of Posts and Telecommunications),  Xiang Cui (Beijing University of Posts and Telecommunications Beijing, China), Qixu Liu (Institute of Information Engineering, Chinese  Academy of Sciences, China), Xiaoxi Wang (Institute of Information  Engineering, Chinese Academy of Sciences, China), and Chaoge Liu (Institute of Information Engineering, Chinese Academy of Sciences, China)	. 197

Image Encryption Algorithm Based on Memristive BAM Neural Networks  Jiuhong Xiao (University of Science and Technology Beijing), Weiping  Wang (University of Science and Technology Beijing), and Meiqi Wang  (University of Science and Technology Beijing)	. 205
Constructing Browser Fingerprint Tracking Chain Based on LSTM Model  Xiaoyun Li (Beijing University of Posts and Telecommunications  Beijing, China), Xiang Cui (Cyberspace Institute of Advanced  Technology, Guangzhou University, China), Limin Shi (Shandong  University of Science and Technology, China), Chaoge Liu (Institute of  Information Engineering, Chinese Academy of Sciences, China), and  Xiaoxi Wang (Institute of Information Engineering, Chinese Academy of  Sciences, China)	213
MaliceScript: A Novel Browser-Based Intranet Threat  Chaoge Liu (Institute of Information Engineering, Chinese Academy of Sciences, China), Xiang Cui (Cyberspace Institute of Advanced Technology, Guangzhou University, China), Zhi Wang (Institute of Information Engineering, Chinese Academy of Sciences, China), Xiaoxi Wang (Institute of Information Engineering, Chinese Academy of Sciences, China), Yun Feng (Institute of Information Engineering, Chinese Academy of Sciences, China), and Xiaoyun Li (Beijing University of Posts and Telecommunications Beijing, China)	. 219
RansomTracer: Exploiting Cyber Deception for Ransomware Tracing  ZiHan Wang (Beijing University of Posts and Telecommunications  Beijing, China), Xu Wu (Beijing University of Posts and  Telecommunications Beijing, China), ChaoGe Liu (Institute of  Information Engineering, Chinese Academy of Sciences, China), QiXu Liu  (Institute of Information Engineering, Chinese Academy of Sciences,  China), and JiaLai Zhang (Sichuan University, China)	. 227
User Tagging in MOOCs Through Network Embedding	. 235
Automatically Crawling Dynamic Web Applications via Proxy-Based JavaScript Injection and Runtime Analysis  Yan Li (Beijing University of Posts and Telecommunications Beijing, China), Peiyi Han (Beijing University of Posts and Telecommunications Beijing, China), Chuanyi Liu (Harbin Institute of Technology, China), and Binxing Fang (Beijing University of Posts and Telecommunications Beijing, China)	. 242
Approximation Algorithms for Controller Placement Problems in Software Defined Networks	. 250
SAQP++: Bridging the Gap between Sampling-Based Approximate Query Processing and Aggregate Precomputation  Dongxiang Zhang (National University of Defense Technology, China),  Mingtao Lei (Beijing University of Posts and Telecommunications Beijing, China), and Xiang Zhu (National University of Defense Technology, China)	. 258

How to Control Target Nodes in Dynamic Networks	266
Zhaoquan Gu (Guangzhou University, China), Yongcai Wang (Renming University, China), Jing Qiu (Guangzhou University, China), Lihua Yin	
(Guangzhou University, China), and Zhihong Tian (Guangzhou University, China)	
Evolutionary Game Based Analysis for User Privacy Protection Behaviors in Social Networks	. 274
Bitcoin Mixing Detection Using Deep Autoencoder  Lihao Nan (UBTECH Sydney AI Centre, SIT, FEIT, University of Sydney,  Australia) and Dacheng Tao (UBTECH Sydney AI Centre, SIT, FEIT,  University of Sydney, Australia)	280
Robust Audio Watermarking Algorithm Based on Air Channel Characteristics  Wen Diao (University of Science and Technology of China), Yuanxin Wu (University of Science and Technology of China), Weiming Zhang (University of Science and Technology of China), Bin Liu (University of Science and Technology of China), and Nenghai Yu (University of Science and Technology of China)	288
Early Detection of Rumors in Heterogeneous Mobile Social Network  Yuanxing Zhang (Peking University), Kaigui Bian (Peking University),  Lin Chen (Yale University), Shaoling Dong (Fibonacci Data Consulting  Services Inc.), Lingyang Song (Peking University), and Xiaoming Li  (Peking University)	. 294
Research on Vulnerability of Space Information Network Based on Interdependent Networks	. 302
Stochastic Alternating Direction Method of Multipliers with Conjugate Gradient	310
Performance Comparison of Deep Learning Techniques for Recognizing Birds in Aerial Images  Yang Liu (University of Missouri), Peng Sun (University of Missouri),  Max R. Highsmith (University of Missouri), Nickolas M. Wergeles (University of Missouri), Joel Sartwell (Missouri Department of Conservation), Andy Raedeke (Missouri Department of Conservation),  Mary Mitchell (U.S. Fish & Wildlife Service), Heath Hagy (U.S. Fish & Wildlife Service), Andrew D. Gilbert (University of Illinois), Brian Lubinski (U.S. Fish & Wildlife Service), and Yi Shang (University of Missouri)	. 317
H-Securebox: A Hardened Memory Data Protection Framework on ARM Devices  Zhangkai Zhang (Beihang University, China), Zhoujun Li (Beihang University, China), Chunhe Xia (Beihang University, China), Jinhua Cui (Singapore Management University, Singapore), and Jinxin Ma (China Information Technology Security Evaluation Center, China)	. 325

Research of Urban Land Use and Regional Functions Based on Mobile Data Traffic  Qing Miao (Beijing University of Posts and Telecommunications Beijing,  China), Yuanyuan Qiao (Beijing University of Posts and  Telecommunications Beijing, China), and Jie Yang (Beijing University  of Posts and Telecommunications Beijing, China)	333
Course Concept Extraction in MOOC via Explicit/Implicit Representation	339
AI-Assisted Prediction on Potential Health Risks with Regular Physical Examination Records	346
Study on Security Technology of Internet of Things Based on Network Coding	353
Efficiently Preserving Privacy on Large Trajectory Datasets  Chen-Yi Lin (National Taichung University of Science and Technology, Taiwan), Yuan-Chen Wang (National Taichung University of Science and Technology, Taiwan), Wan-Tian Fu (National Taichung University of Science and Technology, Taiwan), Yun-Sheng Chen (National Taichung University of Science and Technology, Taiwan), Kuan-Chen Chien (National Taichung University of Science and Technology, Taiwan), and Bing-Yi Lin (National Taichung University of Science and Technology, Taiwan)	358
Lip Segmentation with Muti-scale Features Based on Fully Convolution Network  Zhen Ju (Shanghai Jiao Tong University, China), Xiang Lin (Shanghai  Jiao Tong University, China), Fangqi Li (Shanghai Jiao Tong  University, China), and Shilin Wang (Shanghai Jiao Tong University,  China)	365
Research on Discrete Emotion Classification of Chinese Online Product Reviews Based on OCC Model  Lina Liu (Beijing University of Posts and Telecommunications Beijing,  China) and Jiayin Qi (Beijing University of Posts and  Telecommunications Beijing, China)	371
Complete Graph Random Number Generator and Symmetrical Design Scheme  Yuguang Xu (Peking University), Hanpin Wang (Peking University), and  Hongyu Wang (Peking University)	379
Predicting the Popularity of Online Content Based on the Weak Ties Theory  Xiaomeng Wang (Harbin Institute of Technology, China), Binxing Fang (Harbin Institute of Technology, China), Hongli Zhang (Harbin  Institute of Technology, China), and Shen Su (Guangzhou University,  China)	386

Evaluating the Rationality of Judicial Decision with LSTM-Based Case Modeling	392
A Practical Approach to Answer Extraction for Constructing QA Solution  Mingxuan Xiong (The First High School of Changsha, China), Aiping Li  (National University of Defense Technology, China), Zongsheng Xie  (National University of Defense Technology, China), and Yan Jia  (National University of Defense Technology, China)	398
Structural Vulnerability of Complex Networks Under Multiple Edge-Based Attacks	405
Big Data and Business Analytics (BDBA 2018)	
Will the Big Data Strategic Alliance be Workable for Intelligent Vehicles and New Energy Vehicles Industry?—Perspective of System Dynamics  Xiaoyan Wang (Business School Suzhou University of Science and Technology, China), Debao Hu (International College Renmin University of China), and Hui Lu (Guangzhou University, China)	440
Distributed Large Scale Privacy-Preserving Deep Mining	418
Transfer Pretrained Sentence Encoder to Sentiment Classification  Man Bai (Beijing University of Posts and Telecommunications, Beijing, China), Xu Han (Beijing University of Posts and Telecommunications, Beijing, China), Haoran Jia (Beijing University of Posts and Telecommunications, Beijing, China), Cong Wang (Beijing University of Posts and Telecommunications, Beijing, China), and Yawei Sun (Beijing University of Posts and Telecommunications, Beijing, China)	423
Application of Improved Grey Model GM(1,1) in Prediction of Human Health Data  Pin Ding (Beijing University of Posts and Telecommunications Beijing, China), Qinliu Yang (Beijing University of Posts and Telecommunications Beijing, China), Cong Wang (Beijing University of Posts and Telecommunications Beijing, China), Xiaoyan Wei (Sun Yat-sen University, Guangzhou, China), and Yi Zhou (Sun Yat-sen University, Guangzhou, China)	428

Hybrid Recommendation Algorithm Based on Social Interaction and Tag Weight
Ownership Concentration, Internal Control Quality and Real Earnings Management
Dockless Bike-Sharing Reallocation Based on Data Analysis: Solving Complex Problem with Simple  Method
Sentiment Analysis Based on Deep Learning and Its Application in Screening for Perinatal Depression
Design and Implementation of Information Dissemination Simulation Algorithm in Large-Scale Complex  Network Based on Spark
A Bayesian Personalized Ranking Algorithm Based on Tag Preference
Customized Bundle Recommendation by Association Rules of Product Categories for Online Supermarkets 472  Yan Fang (Dalian University of Technology, China), Xinyue Xiao (Dalian  University of Technology, China), Xiaoyu Wang (Dalian University of  Technology, China), and Huiqing Lan (Dalian University of Technology,  China)
Big Data Mining for Cyberspace (BDMC 2018)
Insider Threat Detection Using Characterizing User Behavior

An Intelligent Network Attack Detection Method Based on RNN  Yunsheng Fu (Institute of Computer Application, China Academy of Engineer Physics), Fang Lou (Institute of Computer Application, China Academy of Engineer Physics), Fangzhi Meng (Institute of Computer Application, China Academy of Engineer Physics), Zhihong Tian (Guangzhou University, China), Hua Zhang (Institute of Computer Application, China Academy of Engineer Physics), and Feng Jiang (Harbin Institute of Technology, China)	.483
A Novel Approach for Detecting Browser-Based Silent Miner  Jingqiang Liu (Institute of Information Engineering Chinese Academy of Sciences, China), Zihao Zhao (Institute of Information Engineering, Chinese Academy of Sciences, China; Nanchang University, China), Xiang Cui (Guangzhou University, China), Zhi Wang (Institute of Information Engineering, Chinese Academy of Sciences, China), and Qixu Liu (Institute of Information Engineering, Chinese Academy of Sciences, China)	. 490
A Metadata-Based Representation Method of the Internet of Things	. 498
Authentication of Multiple-User Spatial Keywords Queries	. 506
Automated Fuzz Generators for High-Coverage Tests Based on Program Branch Predications  Jinjing Zhao (National Key Laboratory of Science and Technology on  Information System Security, China) and Ling Pang (National Key  Laboratory of Science and Technology on Information System Security,  China)	. 514
Mode Decomposition Based Hybrid Model for Traffic Flow Prediction  Zhenpeng Zheng (Shanghai Jiaotong University, China), Li Pan (Shanghai  Jiaotong University, China), and Khouanetheva Pholsena (Shanghai  Jiaotong University, China)	. 521
A Method Based on Statistical Characteristics for Detection Malware Requests in Network Traffic	527
An Improved Uniform Identity Authentication Method Based on SAML in Cloud Environment	.533

A Location Privacy-Aware Method for kNN Query in Location Based Services
Hand Gesture Recognition Based on Deep Learning Method
A Novel Automatic Diagnosis Based Physical Therapy for Duchenne Muscular Dystrophy Children
Video Frame Interpolation Based on Multi-scale Convolutional Network and Adversarial Training
Analysis on the Influence Factors of the Medical Institutions' Medical Efficiency Change in China
Data Intelligence and Security Analysis (DISA 2018)
Efficient Identity-Based Offline/Online Encryption Scheme for Lightweight Devices

Deep Learning Based Attribute Classification Insider Threat Detection for Data Security  Fanzhi Meng (Institute of Computer Application, China Academy of  Engineer Physics), Fang Lou (Institute of Computer Application, China  Academy of Engineer Physics), Yunsheng Fu (Institute of Computer	576
Application, China Academy of Engineer Physics), and Zhihong Tian (Cyberspace Institute of Advanced Technology, Guangzhou University)	
Ensemble Steganography  Chuan Qin (University of Science and Technology of China), Wenbo Zhou  (University of Science and Technology of China), Weiming Zhang  (University of Science and Technology of China), and Nenghai Yu  (University of Science and Technology of China)	582
An In-depth Study of Digits in Passwords for Chinese Websites	588
Chaotic-Map Image Encryption Scheme Based on AES Key Producing Schedule	596
Automatic Generation of Review Content in Specific Domain of Social Network Based on RNN	601
A Novel Blockchain-Based Authenticated Key Exchange Protocol and Its Applications	609
Advanced Slide Attacks on the Even-Mansour Scheme  Guang Yang (CAS University of Science and Technology of China), Ping  Zhang (CAS University of Science and Technology of China), Jiachen  Ding (CAS University of Science and Technology of China), and Honggang  Hu (CAS University of Science and Technology of China)	615
Learning Automata Based Feature Selection for Network Traffic Intrusion Detection  Yu Su (Shanghai Jiao Tong University, China), Kaiyue Qi (Shanghai Jiao  Tong University, China), Chong Di (Shanghai Jiao Tong University,  China), Yinghua Ma (Shanghai Jiao Tong University, China), and  Shenghong Li (Shanghai Jiao Tong University, China)	622
Anomaly Detection for Power Grid Flow Patterns Based on the Multi-restricted Boltzmann Machines	628

A Content Auditing Method of IPsec VPN
Web Service Applying Moving Target Defense
A Passive-Measurement-Guided Tree Network Surveying and Mapping Model  Wei Sun (Beijing Jiaotong University, China), Jianguo Jiang (Institute of Information Engineering, Chinese Academy of Sciences, China), and Majing Su (Institute of Information Engineering, Chinese Academy of Sciences, China)
A Survey on Collaborative Deep Learning and Privacy-Preserving
Detection of Malicious Domain Names Based on Hidden Markov Model  Pin Lv (University of Chinese Academy of Sciences, Beijing, China; Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China), Lingling Bai (Beijing University of Technology, Beijing, China), Tingwen Liu (Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China;), Zhenhu Ning (Beijing University of Technology, Beijing, China;), Jinqiao Shi (Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China;), and Binxing Fang (Guangdong Institute of Electronic Information Engineering, China; Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China)
Decentralized Privacy Preserving Reputation System
Data Visualization (DV 2018)
Research on the Prediction Method of Power Battery SOC Based on Deep Learning

The Feature Representation Ability of Variational AutoEncoder  Chenxi Dong (Beijing University of Posts and Telecommunications, Beijing, China; Key Laboratory of Trustworthy Distributed Computing and Service (BUPT), China), Tengfei Xue (Key Laboratory of Trustworthy Distributed Computing and Service (BUPT), Beijing, China; Beijing University of Posts and Telecommunications, Beijing, China), and Cong Wang (Key Laboratory of Trustworthy Distributed Computing and Service (BUPT), Beijing, China; Beijing University of Posts and Telecommunications, Beijing, China)	680
Multimodal Object Classification Using Bidirectional Gated Recurrent Unit Networks  Dongzhe Wang (Nanyang Technological University, Singapore) and Kezhi  Mao (Nanyang Technological University, Singapore)	685
Sparse Weighted Naive Bayes Classifier for Efficient Classification of Categorical Data  Zhuoyuan Zheng (Guangxi Key Laboratory of Trusted Software, China),  Yunpeng Cai (Shenzhen Institutes of Advanced Technology, China), Yujie  Yang (Shenzhen Institutes of Advanced Technology, China), and Ye Li  (Shenzhen Institutes of Advanced Technology, China)	691
A Categorically Reweighted Feature Extraction Method for Anomaly Detection  Ruyao Cui (Beijing Institute of Technology), Lei Sun (Beijing  Institute of Technology), Jie Yang (Beijing Institute of Technology),  Bo Liu (DBAPPSecurity Ltd.), and Yuan Fan (DBAPPSecurity Ltd.)	697
A Joint Decoding Algorithm for Named Entity Recognition  Dong Yang Zhao (National University of Defense Technology, China),  JiuMing Huang (National University of Defense Technology, China), Yu  Luo (National University of Defense Technology, China), and Yan Jia  (National University of Defense Technology, China)	705
Establishment of Computer-Aided Diagnosis System for Liver Tumor CT Based on SVM	710
A Tensor-Based Sub-Mode Coordinate Algorithm for Stock Prediction  Jieyun Huang (Beijing University of Posts and Telecommunications  Beijing, China), Yunjia Zhang (Beijing University of Posts and  Telecommunications Beijing, China), Jialai Zhang (School of Electronic  Information, Sichuan University, China), and Xi Zhang (Beijing  University of Posts and Telecommunications Beijing, China)	716
Detecting Pyramid Scheme Accounts with Time Series Financial Transactions	722

Visualization of Pairwise Data: An Overview	729
Hyperspectral Image Denoising base on Adaptive Sparse Representation	735
Tactical Wireless Network Visualization: Requirements and Representations  Yougen Zhang (National University of Defense Technology, China) and  Yingchun Shi (National University of Defense Technology, China)	740
Reasearch on Dynamic Evolution Model Visualization of Satellite Communication Network Based on Complex Network  Chengxiang Liu (Space Engineering University, Beijing, China) and Wei  Xiong (Space Engineering University, Beijing, China)	744
A Speedup Spatial Rearrangement Algorithm for Dynamic Network Visualization  Yingmei Wei (National University of Defense Technology, China),  Xiaolei Du (Chinese Academy of Military Science), Dalin Xu (National  University of Defense Technology, China), and Xianghan Wang (National  University of Defense Technology, China)	749
Generation Framework for Situation Visualization Service from the Perspective of Cognition	754
A Multi-layer Network Topology Visualization Layout Based on Louvain Community Detection	760
Research on the Technology of Electromagnetic Information Modeling and Visual Analysis	764
Convolutional Neural Networks Based for High Spectral Dimensional Data Classification  Jiang Zhu (Space Engineering University, Beijing, China), Lingda Wu (Space Engineering University, Beijing, China), Yi Lu (Space Engineering University, Beijing, China), Jiao Jiao (Space Engineering University, Beijing, China), and Xiaorui Song (Space Engineering University, Beijing, China)	768

## **Intelligent System Security (ISS 2018)**

A PCA-Based Model to Predict Adversarial Examples on Q-Learning of Path Finding  Yingxiao Xiang (Beijing Jiaotong University, China), Wenjia Niu  (Beijing Jiaotong University, China), Jiqiang Liu (Beijing Jiaotong  University, China), Tong Chen (Beijing Jiaotong University, China),  and Zhen Han (Beijing Jiaotong University, China)	773
Adversarial Examples Construction Towards White-Box Q Table Variation in DQN Pathfinding Training Xiaoxuan Bai (Beijing Jiaotong University, China), Wenjia Niu (Beijing Jiaotong University, China), Jiqiang Liu (Beijing Jiaotong University, China), Xu Gao (Beijing Jiaotong University, China), Yingxiao Xiang (Beijing Jiaotong University, China), and Jingjing Liu (Beijing Jiaotong University, China)	781
Intention-Aware Multi-channel Keyword Extension for Content Security  Chunjing Qiu (Beijing Key Laboratory of Security and Privacy in  Intelligent Transportation, China), Jiqiang Liu (Beijing Key  Laboratory of Security and Privacy in Intelligent Transportation,  China), Yingxiao Xiang (Beijing Key Laboratory of Security and Privacy in Intelligent Transportation, China), Wenjia Niu (Beijing Key  Laboratory of Security and Privacy in Intelligent Transportation,  China), and Tong Chen (Beijing Key Laboratory of Security and Privacy in Intelligent Transportation, China)	788
A RF-PSO Based Hybrid Feature Selection Model in Intrusion Detection System  Hengxun Li (First Research Institute of the Ministry of Public  Security of PRC), Wei Guo (First Research Institute of the Ministry of  Public Security of PRC), Guoying Wu (First Research Institute of the  Ministry of Public Security of PRC), and Yanxia Li (Chinese Academy of  Sciences, China)	795
An Approach to Generate Topic Similar Document by Seed Extraction-Based SeqGAN Training for Bait Document  Shuanshuan Pang (Beijing Key Laboratory of Security and Privacy in Intelligent Transportation, China), Wenjia Niu (Beijing Key Laboratory of Security and Privacy in Intelligent Transportation, China), Jiqiang Liu (Beijing Key Laboratory of Security and Privacy in Intelligent Transportation, China), Yingxiao Xiang (Beijing Key Laboratory of Security and Privacy in Intelligent Transportation, China), and Yingdi Wang (Beijing Key Laboratory of Security and Privacy in Intelligent Transportation, China)	803
Multi-source Network Fusion and Analysis (MSNFA 2018)	
Evaluation on Availability of Entity Information in Cyberspace	811

Prediction of Twist Angle for Assistive Exoskeleton Based on EMG Signals  Hao Guo (Harbin Institute of Technology, China), Kai Yang (Nanjing General Hospital of Nanjing Military Command, China), Xueyan Ma (Nanjing General Hospital of Nanjing Military Command, China), Kai Xing (Nanjing General Hospital of Nanjing Military Command, China), Xiaodong Xia (Nanjing General Hospital of Nanjing Military Command, China), Chifu Yang (Harbin Institute of Technology, China), Chunzhi Yi (Harbin Institute of Technology, China), and Feng Jiang (Harbin Institute of Technology, China)	. 819
A Matrix-Based Apriori Algorithm Improvement  Qinliu Yang (Beijing University of Posts and Telecommunications Key  Laboratory of Trustworthy Distributed Computing and Service(BUPT),  China), Qunchao Fu (Beijing University of Posts and Telecommunications  Key Laboratory of Trustworthy Distributed Computing and Service(BUPT),  China), Cong Wang (Beijing University of Posts and Telecommunications  Key Laboratory of Trustworthy Distributed Computing and Service(BUPT),  China), and Jincui Yang (Beijing University of Posts and  Telecommunications Key Laboratory of Trustworthy Distributed Computing  and Service(BUPT), China)	824
A Hierarchical Demand Prediction Method with Station Clustering for Bike Sharing System  Sijia Feng (National University of Defense Technology, China), Hao  Chen (National University of Defense Technology, China), Chun Du  (National University of Defense Technology, China), Jun Li (National  University of Defense Technology, China), and Ning Jing (National  University of Defense Technology, China)	. 829
Automatic Taxonomy Construction for Eye Colors Data without Using Context Information	837
A Pricing Model for Self-Help Investigation Offline Based on Multivariate Linear Regression Analysis  Ping Wang (University of Jinan, China), Zhongtian Jia (University of Jinan, China), Bo Zhang (University of Jinan, China), and Chengbo Xu (University of Jinan, China)	. 842
Research on Improve Topic Representation over Short Text  Lingyun Li (Beijing University of Posts and Telecommunications, Beijing, China), Yawei Sun (Beijing University of Posts and Telecommunications, Beijing, China), Xu Han (Beijing University of Posts and Telecommunications, Beijing, China), and Cong Wang (Beijing University of Posts and Telecommunications, Beijing, China)	. 848
Realistic Traffic Data Based Mobility Modeling and Simulation of Smart EV	854
An Approach for Evaluating User Participation in Bitcoin  Tengfei Xue (Beijing University of Posts and Telecommunications  Beijing, China), Yuyu Yuan (Beijing University of Posts and  Telecommunications Beijing, China), and Cong Wang (Beijing University  of Posts and Telecommunications Beijing, China)	858

Representation Learning Based on Influence of Node for Multiplex Network
Exploiting Structured News Information to Improve Event Detection via Dual-Level Clustering
Expert Identification Based on Dynamic LDA Topic Model
Vulnerability Analysis and Adversarial Learning (VAAL 2018)
De-anonymizing Social Networks User via Profile Similarity
BlockCAM: A Blockchain-Based Cross-Domain Authentication Model
A Method of Fast Locating the Key Nodes Based on the Distribution Law of Node's Propagation Domain 902  Xiaolin Zhao (Beijing Institute of Technology, China), Meijing Wu  (Beijing Institute of Technology, China), Qi Zhang (Chinese Academy of Sciences, China), Jingfeng Xue (Beijing Institute of Technology, China), and Yiman Zhang (Beijing Institute of Technology, China)
A Survey on Security of Cloud Environment: Threats, Solutions, and Innovation
OFC: An Approach for Protecting Location Privacy from Location Provider in Location-Based Services 917  Ming Hou (Harbin Institute of Technology, China), Hongli Zhang (Harbin  Institute of Technology, China), and Yuhang Wang (Harbin Institute of  Technology, China)

Remote Protocol Vulnerability Discovery for Intelligent Transportation Systems (ITS)	923
Liang Ming (National Key Laboratory of Science and Technology on	
Information System Security, China), Gang Zhao (National Key	
Laboratory of Science and Technology on Information System Security,	
China), Minhuan Huang (National Key Laboratory of Science and	
Technology on Information System Security, China), Ling Pang (National	
Key Laboratory of Science and Technology on Information System	
Security, China), Jin Li (National Key Laboratory of Science and	
Technology on Information System Security, China), Jingzhe Zhang	
(National Key Laboratory of Science and Technology on Information	
System Security, China), Dan Li (National Key Laboratory of Science	
and Technology on Information System Security, China), and Shuaibing	
Lu (National Key Laboratory of Science and Technology on Information	
System Security, China)	
Data-Driven Vulnerability Pattern Analysis for Fuzzing	930
Dan Li (National Key Laboratory of Science and Technology on	750
Information System Security, China), Hua Chen (National Key Laboratory	
of Science and Technology on Information System Security, China),	
Huayang Cao (National Key Laboratory of Science and Technology on	
Information System Security, China), and Liang Ming (National Key	
Laboratory of Science and Technology on Information System Security,	
China)	
Research on Security of Key Algorithms in Intelligent Driving System	. 936
Yimu Ji (Nanjing University of Posts and Telecommunications, China),	
Chen Chen (Nanjing University of Posts and Telecommunications, China),	
Shangdong Liu (Nanjing University of Posts and Telecommunications,	
China), Fei Wu (Nanjing University of Posts and Telecommunications,	
China), Zhiyu Chen (Nanjing University of Posts and	
Telecommunications, China), Qiang Bi (Nanjing University of Posts and	
Telecommunications, China), Na Wang (Nanjing University of Posts and	
Telecommunications, China), Zhipeng Jiao (Nanjing University of Posts	
and Telecommunications, China), Yede Qi (Nanjing University of Posts	
and Telecommunications, China), Xingwang Yang (Nanjing University of	
Posts and Telecommunications, China), Siyang Hou (Wuhan University of	
Technology, China), Xiangyu Cao (Nanjing University of Posts and	
Telecommunications, China), and Yichao Dong (Nanjing University of	
Posts and Telecommunications, China)	
A Vulnerability Test Method for Speech Recognition Systems Based on Frequency Signal Processing	943
Honghao Yang (Beijing University of Posts and Telecommunications	
Beijing, China), Dong Liang (Beijing University of Posts and	
Telecommunications Beijing, China), Xiaohui Kuang (National Key	
Laboratory of Science and Technology on Information System Security,	
China), and Changqiao Xu (Beijing University of Posts and	
Telecommunications Beijing, China)	
Telecommunications Despite, Charley	

Who are in the Darknet? Measurement and Analysis of Darknet Person Attributes	948
Meiqi Wang (Institute of Information Engineering Chinese Academy of	
Sciences, UCAS, Beijing, China), Xuebin Wang (Institute of Information	
Engineering Chinese Academy of Sciences, UCAS, Beijing, China),	
Jinqiao Shi (Institute of Information Engineering Chinese Academy of	
Sciences, Beijing, China), Qingfeng Tan (Cyberspace Institute of	
Advanced Technology, GuangZhou University, GuangZhou, China), Yue Gao	
(Institute of Information Engineering Chinese Academy of Sciences,	
UCAS, Beijing, China), Muqian Chen (Institute of Information	
Engineering Chinese Academy of Sciences, UCAS, Beijing, China), and	
Xiaoming Jiang (Institute of Information Engineering Chinese Academy	
of Sciences, Beijing, China)	
Analysis on the Related Evaluation Technique of Composite Attack in Network Confrontation	956
(National University of Defense Technology, China), Yan Jia (National	
University of Defense Technology, China), and Aiping Li (National	
University of Defense Technology, China)	
Author Index	963