2017 IEEE International Conference on Data Science in Cyberspace

June 26-29, 2017 • Shenzhen, Guangdong, China

Sponsored by

Institute of Electrical and Electronics Engineers

IEEE Technical Committee on Scalable Computing

IEEE Computer Society

Cyber Security Association of China

Chinese Academy of Engineering

Organized by

Institute of Information Engineering, CAS

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National University of Defense Technology

Xidian University

University of Science and Technology of China

Science and Technology on Complex Electronic System Simulation Laboratory

Jinan University

Hangzhou Dianzi University

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2017 IEEE International Conference on Data Science in Cyberspace

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IEEE DSC 2017 Program at a Glance

Shenzhen China June 26-29, 2017

Keynote Lecture: ***60 minutes*** (about 45 minutes for talk and 15 minutes for Q and A)
Main conference paper: ***25 minutes*** (about 20 minutes for talk and 5 minutes for Q and A)

June 25	
14:00-20:00	**Registration (Location: Lobby)**
June 26 – 29	
7:30-18:00	**Registration (Location: Lobby)**

Monday, June 26, 2017 (Workshop Day)							
Time	**Conference Hall 1**	**Conference Hall 2**	**Conference Hall 3**	**Conference Hall 4**	**Conference Hall 5**	**Conference Hall 6**	**Conference Hall 7**
9:00-10:10	**Tutorial 1: Data Science in Online Digital Advertising** ***Xingquan Zhu,*** *Florida Atlantic University*	BDBA 2017 (Big Data and Business Analytics)	PBD 2017 (Privacy for Big Data)	CPSSP 2017 (Cyber-Physical Systems Security & Privacy)	DSPIoT 2017 (Data Security and Privacy in Internet of Things)		
10:10-10:20	**Coffee Break**						
10:20-11:40	**Tutorial 1 (cont'd)**	BDBA 2017 **(cont'd)**	PBD 2017 **(cont'd))**	CPSSP 2017 **(cont'd)**	DSPIoT 2017 **(cont'd)**		
11:40-12:10							
12:10-13:30	**Lunch (Location: Western Restaurant)**						
13:30-14:00		DV 2017 (Data Visualization)	BDCA 2017 (Big Data Cybersecurity Analytics)	DSWA 2017 (Data Science and Web Analytics)	MuNFA 2017 (Multi-view Network Fusion and Analysis)		
14:00-15:30	**Tutorial 2: The Emergence of Hardware Security** ***Yier Jin,*** *University of Florida*					**Joint Event 1**	**Joint Event 4**
15:30-15:40	**Coffee Break**						
15:40-16:40	**Tutorial 2 (cont'd)**	DV 2017 **(cont'd)**	BDCA 2017 **(cont'd)**	DSWA 2017 **(cont'd)**	MuNFA 2017 **(cont'd)**	**Joint Event 2**	**Joint Event 4 (cont'd)**
16:40-17:40						**Joint Event 3**	
18:00-19:00						**Steering Committee**	
19:00-20:00	**Reception (Location: Conference Center)**						

Tuesday, June 27, 2017			
Time	**Sessions**	**Chair**	**Venue**
9:00-9:30	**Opening and Welcoming Speech: Binxing Fang** **Welcome Speech from TPC Co-chair: Jinjun Chen** **Welcome Speech from Organizer: Li Guo** **Welcome Speech from Local Co-organizer: Liang Zhen**	**Yan Jia**	**Conference Center**
9:30-10:30	**Keynote 1: Defining Cyberspace Security** ***Binxing Fang,*** *China Electronics Corporation*	**Philip S. Yu**	**Conference Center**
10:30-10:40	**Coffee Break**		

10:40-11:40	**Keynote 2: Security Challenges in the Internet of Things** ***Kui Ren,*** *University of New York at Buffalo*	**Philip S. Yu**	**Conference Center**
12:00-13:30	**Lunch (Location: Western Restaurant)**		
	Conference Hall 1	**Conference Hall 2**	**Conference Hall 3**
13:30-15:30	**S1: Big Data** **Co-chairs: Jian Zhang and Bin Zhou**	**S2: Social Network** **Co-chairs: Wei Wang and Jianshan Sun**	**S3: Network Security 1** **Co-chairs: Zhoujun Li, Hui Li and Junbin Fang**
15:30-15:40	**Coffee Break**		
15:40-17:45	**S1: Big Data** **(cont'd)**	**S2: Social Network** **(cont'd)**	**S3: Network Security 1** **(cont'd)**
18:00-20:30 **Awarding Ceremony &Banquet**	**Event**	**Chair**	**Venue**
	18:00-18:30 Awarding Ceremony **Speech from Honorary Co-chair: Philip S. Yu** **Best Paper Prize Presentation: Binxing Fang** **Photography** **Introduction to the Organizer of Next DSC Conference**	**Yan Jia**	**Conference Center**
	18:30 Banquet		**Conference Center**
Wednesday, June 28, 2017			
Time	**Sessions**	**Chair**	**Venue**
9:00-10:00	**Keynote 3: Business Decision Making in Cyberspace: Data Abounds. Data Confounds.** ***Anthony Scriffignano,*** *Dun & Bradstreet*	**Xindong Wu**	**Conference Center**
10:00-11:00	**Keynote 4: Data Driven Cyber-Physical-Human Systems** ***Panganamala Ramana Kumar,*** *Texas A&M University*	**Xindong Wu**	**Conference Center**
11:00-11:10	**Coffee Break**		
11:10-12:10	**Panel: "Big Data: Big Challenge or Big Opportunity?"** **Panelist: Panganamala Ramana Kumar, Anthony Scriffignano, Philip S. Yu, Xindong Wu, Xiaoyang Wang**	**Jinjun Chen**	**Conference Center**
12:10-13:30	**Lunch (Location: Western Restaurant)**		
	Conference Hall 1	**Conference Hall 2**	**Conference Hall 3**
13:30-15:30	**S4: Learning and Mining** **Co-chairs: Jie Tang and Jin Cao**	**S5: Mobile Computing** **Co-chairs: Hongli Zhang and Yizhi Ren**	**S6: Network Security 2** **Co-chairs: Jun He and Zhen Wang**
15:30-15:40	**Coffee Break**		
15:40-17:45	**S4: Learning and Mining** **(cont'd)**	**S5: Mobile Computing** **(cont'd)**	**S6: Network Security 2** **(cont'd)**
18:00	**Dinner (Location: Conference Center)**		
Thursday, June 29, 2017			
Time	**Conference Hall 1**		
9:00-10:30	**Industrial Track1: Large Scale Security Infrastructure and Platform in Practice** ***Ye Wu****, Baidu Inc.*		
10:30-10:40	**Coffee Break**		
10:40-12:10	**Industrial Track2: The Systemic Perspective on the Struggling for Network Security** ***Xinhua Zheng****, 360 Enterprise Security Corp.*		
12:10-13:30	**Lunch (Location: Western Restaurant)**		

Keynotes

Keynote 1:

Defining Cyberspace Security

9:30-10:30, Tuesday, June 27, 2017

Conference Center

Keynote Speaker: **Binxing Fang**

Academician of China Academy Engineering, Chief Scientist of China Electronics Corporation

Abstract: Cyberspace has become the fifth domain after sea, land, air and space. Cyberspace security is inextricably linked to national stability and human life and property. This talk explores cybersecurity issues from four levels, i.e., physics level, systems level, data level and application level, including cyber threats and confrontational technical means. I try to use some real-life security cases to make the concept of cyberspace security more intuitive and easy to understand, which I think is of great importance for understanding the overall situation.

Short Bio: Dr. FANG Binxing is an academician of CAE (China Academy Engineering), chief scientist of CEC (China Electronics Corporation), and the former President of BUPT (Beijing University of Posts and Telecommunications), Director of the Key Laboratory of Trustworthy Distributed Computing and Service(BUPT) Ministry of Education, a member of the Advisory Committee for State Informatization, an expert of the National 863 High-Tech project in the field of Information Technology. He is also the tutor of doctorial students for the Harbin Institute of Technology, the National University of Defense Technology, the Institute of Computing Technology, Chinese Academy of Sciences, and Tsinghua University.

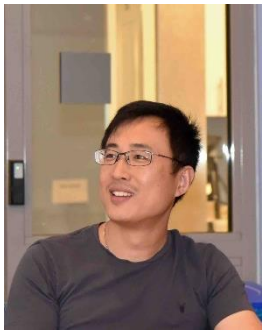
As an expert on network and information security, he has been engaged in the research on computer architecture, artificial intelligence, information security and computer network. He creatively proposed the concept of "National Computer Network and Information Content Security Infrastructure" and took the lead in building systems relative to the network and information security, including "863-917 National Network Security Incident Detection Platform". As the pioneer, he was awarded one First Grade and one Second Grade National Prize for Progress in Science and Technology because of the development of two of these systems. Recently, he has proposed the formal definition of "Information Security", by which, the calculating on the properties of information security is possible. FANG was awarded 10 items of Ministerial Prize for Progress in Science and Technology, and 3 items of Provincial Youth Technological Award. He was named the "Outstanding Professional Technological Talent" in 2002.

Keynote 2:

Security Challenges in the Internet of Things

10:40-11:40, Tuesday, June 27, 2017

Conference Center



Keynote Speaker: **Kui Ren**

Professor of State University of New York at Buffalo (USA), Fellow of the IEEE

Abstract: The vision of Internet of things (IoT) is the interconnected physical devices of various forms, embedded with electronics, software, sensors, actuators, jointly perform sophisticated tasks ranging from data collection, exchange, and aggregation to task scheduling and system operation. IoT is expected to support abundant unprecedented services for the world and referred as "the infrastructure of the information society." Penetrating into almost every critical aspect of the modern society, IoT, however, also poses critical security challenges. In this talk, I will discuss the uniqueness of these security challenges. Particularly, three topics will be covered in depth; that is, 1) The challenge of the device interfaces; 2) IoT hub security; and 3) Data privacy.

Short Bio: Kui Ren is a professor of Computer Science and Engineering and the director of UbiSeC Lab at State University of New York at Buffalo (UB). He received his PhD degree from Worcester Polytechnic Institute. Kui's current research interest spans Cloud & Outsourcing Security, Wireless & Wearable Systems Security, and Mobile Sensing & Crowdsourcing. His research has been supported by NSF, DoE, AFRL, MSR, and Amazon. He received IEEE CISTC Technical Recognition Award in 2017, UB Exceptional Scholar Award for Sustained Achievement in 2016, UB SEAS Senior Researcher of the Year Award in 2015, Sigma Xi/IIT Research Excellence Award in 2012, and NSF CAREER Award in 2011. Kui has published 200 papers in peer-reviewed journals and conferences and received several Best Paper Awards including IEEE ICNP 2011. His h-index is 54, and his total publication citation exceeds 18,000. He currently serves as an associate editor for IEEE Trans. on Dependable and Secure Computing, IEEE Trans. on Service Computing, IEEE Trans. on Mobile Computing, IEEE Wireless Communications, IEEE Internet of Things Journal, and an editor for SpingerBriefs on Cyber Security Systems and Networks. Kui is a Fellow of IEEE, a Distinguished Lecturer of IEEE, a member of ACM, and a past board member of Internet Privacy Task Force, State of Illinois.

Keynote 3:

Business Decision Making in Cyberspace: Data Abounds. Data Confounds.

9:00-10:00, Wednesday, June 28, 2017

Conference Center

Keynote Speaker: **Anthony Scriffignano**

Chief Data Scientist at Dun & Bradstreet

Abstract: Business decisions have always been informed by data: data about the counterparties in a relationship, the nature of a transaction and historical risk are but a few examples. Business objectives remain relatively well understood, however virtually all of the underlying data is changing in curious and sometimes alarming ways. For example, the Internet of Things is producing increasing amounts of data that is only shared and understood in relatively constrained context, yet rich in signal value. Artificial intelligence has multiple methods, some of which learn from human users as they are being employed. Not all innovation is for good. Cyber terrorism and cyber crime are very real examples of the risks of ignoring the ways in which technology and data can be used in alarming ways.

In this session, Dr. Anthony Scriffignano, SVP/Chief Data Scientist at Dun and Bradstreet, will explore how the massive availability of data is changing the way business decisions are made in the modern context. Methods, tools and technologies can be very helpful or, as Dr. Scriffignano puts it, "they can accelerate the speed with which we fail." If, however, we ask the right questions (and maybe use a bit of different math!), new sources of data can yield fascinating inferences. This session will cover three main themes: Our Curious World (how the data around us continues to change), The Risks and Our Response (practical examples of connecting disparate information to make better decisions), and Future Trends and Recommendations. This talk will challenge our thinking about the abundance of data and the skills leaders need to succeed.

Short Bio: Anthony Scriffignano has over 35 years experience in information technologies, Big-4 management consulting, and international business. Scriffignano leverages deep data expertise and global relationships to position Dun & Bradstreet with strategic customers, partners, and governments. A key thought leader in D&B's worldwide efforts to discover, curate, and synthesize business information in multiple languages, geographies, and contexts, he has also held leadership positions in D&B's Technology and Operations organizations. Dr. Scriffignano has extensive background in linguistics and advanced computer algorithms, leveraging that background as primary inventor on multiple patents and patents pending for D&B.

Scriffignano regularly presents at various business and academic venues in the U.S., Europe, Latin America, and Asia as a keynote speaker, guest instructor, and forum panelist, including China's World Internet Conference (2015 and 2016) and the Guiyang Big Data Expo (2016 and 2017). Topics have

included emerging trends in data and information stewardship relating to the “Big Data” explosion of data available to organizations, multilingual challenges in business identity, and strategies for change leadership in organizational settings.

Scriffignano also confers with key customers on emerging trends in global data science. He was profiled by InformationWeek in a special coverage series “Big Data. Big Decisions” and by BizCloud regarding big data problem formulation and data privacy. He has been also interviewed and quoted in publications including Caixin, People.com, China Daily, and Xinhua.

Scriffignano has also held senior positions with other multinational organizations. This experience includes extremely large ERP implementations and worldwide organizational change and technology adaptation efforts. He has advised firms in financial services, manufacturing (chemicals and pharmaceuticals) and information technologies. He maintains CPIM certification from APICS, the internationally-recognized Association for Operations Management, in production and inventory management.

Keynote 4:

Data Driven Cyber-Physical-Human Systems

10:00-11:00, Wednesday, June 28, 2017

Conference Center

Keynote Speaker: **Panganamala Ramana Kumar**

Professor of Texas A&M University (USA), Fellow of The National Academy of Engineering, Fellow of the IEEE

Abstract: The traditional approach to designing dynamic systems has been model-based. However, in an age where data is increasingly easier to obtain and with low latency, there is increasing interest in using available data to refine models, or even to proceed directly from data to decision. In some systems there may not even be precise models available, as for example in systems where humans are in the loop. Yet, increasingly the behavior of humans critically affects the functioning of the system.

The proper usage of data in cyber-physical-human raises many problems. Sometimes there is a large amount of data, and it is necessary to sift information from data. In some instances it may even be necessary to find patterns in the data to construct models.

In many instances, one may want to exploit the data but respect the privacy of the sources of the data. This talk will examine a variety of such problems that arise in the context of one important cyber-physical-human system -- the smart grid.

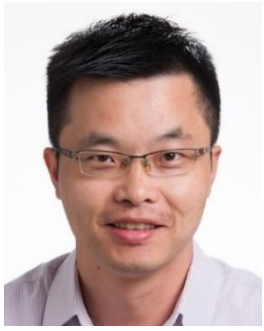
Short Bio: Dr. Kumar obtained his bachelor's degree in electrical engineering from I.I.T. Madras in 1973. He received M.S. and D.Sc. degrees in systems science and mathematics from Washington

University, St. Louis, in 1975 and 1977, respectively. He was elected to the National Academy of Engineering for contributions to adaptive control, manufacturing systems, and wireless networks. He is a member of the Academy of Sciences of the Developing World. In 2008, he was awarded a Doctor of Science, Honoris Causa, by the Swiss Federal Institute of Technology (Eidgenossische Technische Hochschule) in Zurich. He is a fellow of the IEEE and the recipient of the Donald P. Eckman Award of the American Automatic Control Council, the IEEE Field Award for Control Systems, the Fred W. Ellersick Prize of the IEEE Communications Society, and the Outstanding Contribution Award of ACM SIGMOBILE. He was a guest chair professor and leader of the Guest Chair Professor Group on Wireless Communication and Networking at Tsinghua University, Beijing, China. He is an honorary professor at IIT Hyderabad, and a distinguished visiting professor at IIT Bombay. He was awarded the Distinguished Alumnus Award from IIT Madras, the Alumni Achievement Award from Washington University in St. Louis, and the Daniel C. Drucker Eminent Faculty Award from the College of Engineering at the University of Illinois. He has authored and co-authored more than 300 scientific for contributions to adaptive control, manufacturing systems, and wireless networks. Kumar has been at Texas A&M University since 2011 as professor and holder of the College of Engineering Chair in Computer Engineering.

Invited Talks

Invited Talk 1:

Towards Trustworthy and Interactive Queries on Big Spatial Data



13:30-14:15, Tuesday, June 27, 2017

Conference Hall 1

Speaker: **Jianliang Xu**

Abstract: The ubiquity of location-based services (LBS) makes spatial data readily available for search, analysis and retrieval. However, the overwhelming data volume and variety pose new research challenges as well as new opportunities for query processing on big spatial data. In particular, the service provider can be untrustworthy or compromised, thereby raising security threats on data integrity. To enhance system usability and user experience, it is important to provide interactive and verifiable responses to queries. In this talk, we will present several of our recent efforts that are aimed to improve the functionality, usability, and performance of spatial query services on big data. We will also discuss some possible future research directions.

Short Bio: Jianliang Xu is a Professor in the Department of Computer Science, Hong Kong Baptist University (HKBU). He received his BEng degree from Zhejiang University and his PhD degree from Hong Kong University of Science and Technology. His current research interests include big data management, data security and privacy, and database systems. With an h-index of 40, he has published more than 150 technical papers in these areas, most of which appeared in leading journals and conferences including SIGMOD, PVLDB, ICDE, TODS, TKDE and VLDBJ. He has served as a program co-chair/vice chair for a number of major international conferences including IEEE ICDCS 2012, IEEE CPSNA 2015 and WAIM 2016. He was a recipient of HKBU President's Award for Outstanding Performance in Scholarly Work (2017). He is an Associate Editor of IEEE Transactions on Knowledge and Data Engineering (TKDE) and Proceedings of the VLDB Endowment 2018.

Invited Talk 2:

Data Driven Large-Scale Fuzzy Cognitive Map Learning Based on Evolutionary Algorithms

13:30-14:15, Tuesday, June 27, 2017

Conference Hall 2

Speaker: **Jing Liu**

Abstract: Fuzzy cognitive maps (FCMs), a kind of effective tools for creating models for complex

systems, are cognition fuzzy influence graphs, which are based on fuzzy logic and neural networks. FCMs have several advantages in terms of abstraction, flexibility, adaptability, and fuzzy reasoning than traditional modeling techniques such as expert systems and neural networks. Therefore, they have been proposed and applied in a variety of applications such as medical diagnosis, time series analysis, pattern recognition, and modeling of software development project. Many automated learning algorithms have been proposed to learn FCMs from data. This talk focuses on introducing single objective and multi-objective evolutionary algorithm-based FCM learning methods, which can automatically learn large-scale FCMs from time series data.

Short Bio: Jing Liu received the B.S. degree in computer science and technology and the Ph.D. degree in circuits and systems from Xidian University in 2000 and 2004, respectively. In 2005, she joined Xidian University as a lecturer, and was promoted to a full professor in 2009. From Apr. 2007 to Apr. 2008, she worked at The University of Queensland, Australia as a postdoctoral research fellow, and from Jul. 2009 to Jul. 2011, she worked at The University of New South Wales at the Australian Defence Force Academy as a research associate. Now, she is a full professor in the Key Laboratory of Intelligent Perception and Image Understanding of Ministry of Education, Xidian University. Her research interests include evolutionary computation, complex networks, fuzzy cognitive maps, multiagent systems, and data mining. She is the associate editor of IEEE Trans. Evolutionary Computation and the chair of Emerging Technologies Technical Committee in IEEE Computational Intelligence Society.

Invited Talk 3:

Data-Driven Cyber Security

13:30-14:15, Tuesday, June 27, 2017

Conference Hall 3

Speaker: **Yang Xiang**

Abstract: Today we have evidenced massive cyber attacks having hit millions of people in more than 150 countries with billions of dollars lose. Cyber security has become one of the top priorities in the research and development agenda globally.

In the big data era, we face a diversity of datasets from a huge number of sources in different domains. These datasets consist of multiple modalities, each of which has a different representation, distribution, scale, and density.

It has been widely recognized that the power of knowledge from multiple disparate (but potentially connected) datasets is paramount. For example, collecting multiple sources of information from online social networks has become common exercise to deal with social security problems.

Big data analytics are some of the most effective defenses against cyber intrusions. Better, faster, actionable security information reduces the critical time from detection to remediation, enabling cyber warfare specialists to proactively defend and protect cyberspace.

New methods and tools, consequently, must follow up in order to adapt to this emerging security paradigm. In this talk, we will discuss the concept of Data-Driven Cyber Security and how big data analytics can be used to address the security and privacy problems in cyberspace.

Short Bio: Professor Yang Xiang received his PhD in Computer Science from Deakin University, Australia. He is the Director of Centre for Cyber Security Research at Deakin University. His research interests include network and system security, distributed systems, and data analytics. He has published more than 200 research papers in international journals and conferences, such as IEEE Transactions on Computers, IEEE Transactions on Parallel and Distributed Systems, IEEE Transactions on Information Security and Forensics, and IEEE Journal on Selected Areas in Communications. He serves as the Associate Editor of IEEE Transactions on Computers, IEEE Transactions on Parallel and Distributed Systems, Security and Communication Networks (Wiley), and the Editor of Journal of Network and Computer Applications (Elsevier). He is a Senior Member of the IEEE.

Invited Talk 4:

Knowledge Graph Inference Based on Representation Learning

13:30-14:15, Wednesday, June 28, 2017

Conference Hall 1

Speaker: **Bin Wang**

Abstract: A Knowledge Graph (KG) is a directed graph, which represents entities as nodes, their relations as edges. KGs are very important in many applications such as information retrieval, question answering or content recommendation systems. However, most current KGs are extremely sparse thus can only cover very few knowledge. KG inference is to predict the links between entities in KGs, which can be used to improve the knowledge coverage of KGs. This talk will first review some concepts and existing work about KG inference, then concentrate on representation learning based approaches, which have many advantages in both efficiency and effectiveness. Finally, the talk will introduce two of our approaches, which consider the space smoothness and logic rules respectively.

Short Bio: Bin Wang is a Professor of Institute of Information Engineering, Chinese Academy of Sciences. His research interests include information retrieval, natural language processing and social network analysis. Dr. Wang received his Ph.D. degree from Institute of Computing Technology, Chinese Academy of Sciences in 1999. He has published more than 150 research papers in academic journals and conferences including TKDE, SIGIR, CIKM, ACL, EMNLP, IJCAI, AAAI, etc. He

served as PC member of SIGIR, CIKM, ACL and area PC co-chair of AIRS, NLPCC, CCL, CCKS. He also served as technical member of several academic associations or committees.

Invited Talk 5:

Software Defined Anything (SDX)

13:30-14:15, Wednesday, June 28, 2017

Conference Hall 2

Speaker: **Yan Zhang**

Abstract: The main principle of Software Defined Networks (SDN) is to decouple the control plane and the forwarding plane in Internet. This principle may not be limited to the design and operation of the Internet. It is envisioned that such principle can be generalized to separate the control plane from the data plane in all networks/systems/applications. In this context, we may expect software defined any systems in Internet of Things, also known as Software Defined Anything (SDX). In this talk, we will first present the key concepts and architectures related to SDX. Then, we will present our recent studies related to software defined vehicular networks, software defined smart grid, and software defined wireless networks.

Short Bio: Prof. Yan Zhang is Full Professor at the Department of Informatics, University of Oslo, Norway. He received a PhD degree in School of Electrical & Electronics Engineering, Nanyang Technological University, Singapore.

He serves as an Associate Technical Editor of IEEE Communications Magazine, an Editor of IEEE Transactions on Green Communications and Networking, an Editor of IEEE Communications Surveys & Tutorials, an Editor of IEEE Internet of Things Journal, and an Associate Editor of IEEE Access. He serves as chair positions in a number of conferences, including IEEE GLOBECOM 2017, IEEE VTC-Spring 2017, IEEE PIMRC 2016, IEEE CloudCom 2016, IEEE ICCC 2016, IEEE CCNC 2016, IEEE SmartGridComm 2015, and IEEE CloudCom 2015. He serves as TPC member for numerous international conferences including IEEE INFOCOM, IEEE ICC, and IEEE GLOBECOM. He has seven ESI “Highly Cited Papers”. He is IEEE VTS (Vehicular Technology Society) Distinguished Lecturer. He serves as IEEE TCGCC Vice Chair. He is also a senior member of IEEE, IEEE ComSoc, IEEE PES, and IEEE VT society. He is a Fellow of IET. His current research interests include: next-generation wireless networks leading to 5G, reliable and secure cyber-physical systems (e.g., smart grid, transport, and healthcare).

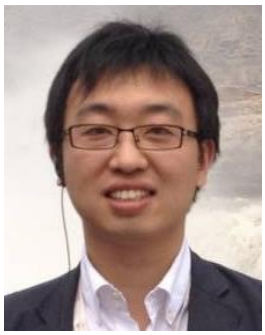
Invited Talk 6:

Graph Encryption for Exact Shortest Distance Queries

13:30-14:15, Wednesday, June 28, 2017

Conference Hall 3

Speaker: **Qian Wang**



Abstract: In the era of big data, graph databases have become increasingly important for NoSQL technologies, and many systems can be modeled as graphs for semantic queries. Meanwhile, with the advent of cloud computing, data owners are highly motivated to outsource and store their massive potentially-sensitive graph data on remote untrusted servers in an encrypted form, expecting to retain the ability to query over the encrypted graphs.

In this talk, we will first provide a brief introduction to searchable symmetric encryption (SSE) designs, which encrypt search structures for retrieving data files. Then we tackle the challenge of designing a Secure Graph DataBase encryption scheme (SecGDB) to encrypt graph structures and enforce private graph queries over the encrypted graph database. We prove that our construction is adaptively semantically-secure and finally implement and evaluate it on various representative real-world datasets, showing that our design is practically efficient in terms of both storage and computation.

Short Bio: Qian Wang is a Professor with the School of Computer Science, Wuhan University. He received the B.S. degree from Wuhan University, China, in 2003, the M.S. degree from Shanghai Institute of Microsystem and Information Technology (SIMIT), Chinese Academy of Sciences, China, in 2006, and the Ph.D. degree from Illinois Institute of Technology, USA, in 2012, all in Electrical Engineering. His research interests include wireless network security and privacy, cloud computing security, big data security and privacy, and applied cryptography. Qian is an expert under National "1000 Young Talents Program" of China. He is a recipient of IEEE Asia-Pacific Outstanding Young Researcher Award 2016. He is also a co-recipient of several Best Paper Awards from IEEE ICNP'11, WAIM'14, and IEEE TrustCom'16 etc. He serves as an Associate Editor for IEEE Transactions on Information Forensics and Security (T-IFS). He is a Member of the IEEE and a Member of the ACM.

Tutorials

Tutorial 1:

Data Science in Online Digital Advertising

9:00-11:40, Monday, June 26, 2017

Conference Hall 1

Presenter: **Xingquan Zhu**

Abstract: Recent advancement in networking and communication technologies have witnessed a rapid growth of digital advertising, which uses the Internet to promote and deliver advertisements (Ad) to consumers. Compared to traditional media, such as Radio, TV, the Internet offers tremendous advantages such as real-time interaction, consumer information availability, transparent user engagement, and effective assessment of the campaign results etc. As a result, on-line digital advertising is quickly dominating the advertising market. One of the prominent and most sought characteristics of the Internet is that it allows the Ad industry to obtain fine-grained information from specific geographic locations, regions, households, or even individual users, and is able to serve highly customized advertisement to users in real-time. Yet the huge data volumes with billions of programmatic transactions on a daily basis, and millisecond real-time response requirement provides significant challenges for data science research to design effective methods for model learning, bidding optimization, fraud identification, etc.

In this tutorial, I will review data science research in online digital advertising, including (1) online digital advertising platforms, tools, and domain knowledge, for both display advertising and search advertising; and will also introduce (2) computational approaches to solve online digital advertising challenges, such as click through rate estimation, bid optimization, and fraud detection. The tutorial will also discuss research questions for future work in the field.

Short Bio: He is an Associate Professor in the Department of Computer and Electrical Engineering and Computer Science, Florida Atlantic University, and a Distinguished Visiting Professor (Eastern Scholar) at Shanghai Institutions of Higher Learning. His research interests mainly include data mining, machine learning, bioinformatics, and computational advertising. He was the recipient of an ARC Future Fellowship in 2010, and has received two Best Paper Awards and one Best Student Paper Award. Dr. Zhu is an associate editor of the IEEE Transactions on Knowledge and Data Engineering (2008-2012, 2014-date), and is currently serving on the Editor Board of International Journal of Social Network Analysis and Mining SNAM (2010-date), Journal of Big Data (2013-date), and Network Modeling Analysis in Health Informatics and Bioinformatics Journal (2014-date). He was a program committee co-chair for the 14th IEEE International Conference on Bioinformatics and BioEngineering (BIBE-2014), IEEE International Conference on Granular Computing (GRC-2013), 23rd IEEE International Conference on Tools with Artificial Intelligence (ICTAI-2011), and the 9th International

Conference on Machine Learning and Applications (ICMLA-2010). He also served as a conference co-chair for ICMLA-2012.

Tutorial 2:

The Emergence of Hardware Security

14:00-16:40, Monday, June 26, 2017

Conference Hall 1

Presenter: **Yier Jin**

Abstract: Hardware has long been touted as dependable and trustable entity than the software running on it. The illusion that attackers cannot easily access the isolated integrated circuit (IC) supply chain has once and again been invalidated by remotely activated hardware Trojan and untraceable break-ins of networking systems running on fake and subverted chips reported by businesses and military strategists, and confirmed by forensic security experts analysing recent incidents. The situation was aggravated by the geographical dispersion of chip design activities and the heavy reliance on third-party hardware intellectual properties (IPs). Counterfeit chips (such as unauthorized copies, remarked/recycled dice, overproduced and subverted chips or cloned designs) pose a major threat to all stakeholders in the IC supply chain, from designers, manufacturers, system integrators to end users, in view of the severe consequence of potentially degraded quality, reliability and performance that they caused to the electronic equipment and critical infrastructure. Unfortunately, tools that can analyse the circuit netlist for malicious logic detection and full functionality recovery are lacking to prevent such design backdoors, counterfeit and malicious chips from infiltrated into the integrated circuit (IC) design and fabrication flow. This tutorial addresses and reviews recent development in preventive countermeasures, post-manufacturing diagnosis techniques and emerging security-enhanced primitives to avert these hardware security threats. This tutorial will also cover the emerging topics where hardware platforms are playing an active role in system protection and intrusion detection. It aims to create an awareness of the ultimate challenges and solutions in addressing hardware security issues in the new age of Internet of Things (IoT), where the intense interactions between devices and devices, and devices and humans have introduced new vulnerabilities of embedded devices and integrated electronic systems.

Short Bio: Yier Jin is the Endowed IoT Term Professor in the Warren B. Nelms Institute for the Connected World and also an Associate Professor in the Department of Electrical and Computer Engineering (ECE) in the University of Florida (UF). Prior to joining UF, he was an assistant professor in the ECE Department at the University of Central Florida (UCF). He received his PhD degree in Electrical Engineering in 2012 from Yale University after he got the B.S. and M.S. degrees in Electrical

Engineering from Zhejiang University, China, in 2005 and 2007, respectively. His research focuses on the areas of embedded systems design and security, trusted hardware intellectual property (IP) cores and hardware-software co-design for modern computing systems. His is currently focusing on the design and security analysis on Internet of Things (IoT) and wearable devices with particular emphasis on information integrity and privacy protection in the IoT era. Dr. Jin received the Best Paper Award in the 52nd Design Automation Conference in 2015, the 21st Asia and South Pacific Design Automation Conference in 2016, and the 10th IEEE Symposium on Hardware-Oriented Security and Trust in 2017.

Industrial Tracks

Industrial Track 1:

Large Scale Security Infrastructure and Platform in Practice

9:00-10:30, Thursday, June 29, 2017

Conference Hall 1

Speaker: Ye Wu, Baidu Inc.

Abstract: In this talk, we are about to briefly introduce the Giano project, a large scale platform created at Baidu in charge of IDC system and data security. This comprehensive platform is composed of next-generation IAM, IDPS, EDR et al, built upon leading-edge technologies ranging from AI-based security intelligence to advanced modern cryptography and latest software-defined techniques. We present its core infrastructure and security mechanisms, such as, critical credential protection in key management, intrusion detection based on big data analysis, sensitive flow tracing enforced in distributed access control, et al.

Short Bio: Dr. Ye Wu is a principal architect at Baidu Inc, interested in access control security, security intelligence and advanced applied cryptography for real applications. He with his team created Giano system that governs overall data and system security for Baidu IDC with the largest scale in Chinese internet companies. Before joining Baidu, he was with Tencent, responsible for cloud security. Dr. Wu has published more than 20 research papers, presented keynotes and invited talks in major international academic conferences. Dr. Wu received his Ph.D. degree in computer science from Stevens Institute of Technology, USA.

Industrial Track 2:

The Systemic Perspective on the Struggling for Network Security

10:40-12:10, Thursday, June 29, 2017

Conference Hall 1

Speaker: Xinhua Zheng, 360 Enterprise Security Corp.

Abstract: This lecture looks at the network attack and defense issues from a systemic perspective, and try to find a high-level methodology to achieve dynamical network security. Systems thinking, systems science and systems engineering can guide the strategy of network defense, and so far they helped to achieve great success in military, industry and society. The network should be treated as a complex system, experts should

coordinate with information system and big data to maintain the network security.

Short Bio: Mr. Zheng is the consultant on security strategy research in 360 Enterprise Security Corporation, and he is a supervisor of Systems Engineering Society of China. Zheng's interest focuses on big data security and threat intelligence, and he is trying to develop the strategy and plan the work for the just established National Engineering Laboratory of Big Data Coordinative Security Technology with systems theories. Before joining 360 Corporation, Mr. Zheng is a senior engineer of China Aerospace Academy of Systems Science and Engineering, he got the first INCOSE CSEP in China mainland and created China Council on Systems Engineering. Mr. Zheng has published more than 30 papers, books and standards.

Panel: "Big Data: Big Challenge or Big Opportunity?"

11:10-12:10, Wednesday, June 28, 2017

Conference Center

Panelists:

Panganamala Ramana Kumar (Texas A&M University),
Anthony Scriffignano (Dun & Bradstreet),
Philip S. Yu (University of Illinois at Chicago),
Xindong Wu (University of Vermont)
Xiaoyang Wang (Fudan University)

Convenor:

Jinjun Chen (University of Technology, Sydney)

Research Sessions

Tuesday, June 27, 2017

Time	S1: Big Data Conference Hall 1 Co-chairs: Jian Zhang and Bin Zhou	S2: Social Network Conference Hall 2 Co-chairs: Wei Wang and Jianshan Sun	S3: Network Security 1 Conference Hall 3 Co-chairs: Zhoujun Li, Hui Li and Junbin Fang
13:30 - 14:15	**Invited Talk 1: Towards Trustworthy and Interactive Queries on Big Spatial Data** *Jianliang Xu*	**Invited Talk 2: Data Driven Large-Scale Fuzzy Cognitive Map Learning Based on Evolutionary Algorithms** *Jing Liu*	**Invited Talk 3: Data-Driven Cyber Security** *Yang Xiang*
14:15 - 14:40	**A Remote Data Integrity Checking Scheme for Big Data Storage** *Xingyue Chen, Tao Shang, Ilryong Kim, and Jianwei Liu*	**A Method of Emotional Analysis of Movie Based on Convolution Neural Network and Bi-Directional LSTM RNN** *Shudong Li, Zhou Yan, Xiaobo Wu, Aiping Li, and Bin Zhou*	**New Pseudorandom Number Generators from Block Ciphers** *Ping Zhang, Honggang Hu, Xianjun Hu, and Xiaolong Yang*
14:40 - 15:05	**Mining Users' Important Locations and Semantics on Cellular Network Data** *Yupeng Tuo, Xiaochun Yun, and Yongzheng Zhang*	**A Personalized Next-Song Recommendation System Using Community Detection and Markov Model** *Kan Zhang, Zichao Zhang, Kaigui Bian, Jin Xu, and Jie Gao*	**A Novel Contributory Cross-Domain Group Password-Based Authenticated Key Exchange Protocol with Adaptive Security** *Liehuang Zhu, Cong Guo, Zijian Zhang, Wei Fu, and Rixin Xu*
15:05 - 15:30	**Mining Similarity-Aware Distinguishing Sequential Patterns from Biomedical Sequences** *Tinghai Pang, Lei Duan, Jesse Li-Ling, and Guozhu Dong*	**DPLK-Means: A novel Differential Privacy K-Means Mechanism** *Jun Ren, Jinbo Xiong, Zhiqiang Yao, Rong Ma, and Mingwei Lin*	**A Fully Secure Verifiable and Outsourced Decryption Ranked Searchable Encryption Scheme Supporting Synonym Query** *Yaqian Kang, and Zhenhua Liu*
15:30 - 15:40	Coffee Break		

15:40 - 16:05	**An Approximate Approach to Frequent Itemset Mining** *Chunkai Zhang, Xudong Zhang, and Panbo Tian*	**A Network Coordinate System Constructing Algorithm Based on Optimal Neighbor Nodes** *Fan Zhao, Jingning Chen, Dengpan Ye, and Xiangyang Luo*	**An Expressive Hidden Access Policy CP-ABE** *Fawad Khan, Hui Li, Liangxuan Zhang, and Jian Shen*
16:05 - 16:30	**On Study of Physical-Layer Attack Detection for Large Volumes of Data** *Ruohan Cao, and Yueming Lu*	**Adaptive Text Steganography by Exploring Statistical and Linguistical Distortion** *Huanhuan Hu, Xin Zuo, Weiming Zhang, and Nenghai Yu*	**Efficient, Verifiable and Privacy Preserving Decentralized Attribute-Based Encryption for Mobile Cloud Computing** *Maoxu Lyu, Xuejun Li, and Hui Li*
16:30 - 16:55	**SDS2: Secure Data-Sharing Scheme for Crowd Owners in Public Cloud Service** *You Zhou, and Liangmin Wang*	**Predicting the Popularity of News Based on Competitive Matrix** *Xiaomeng Wang, Binxing Fang, Hongli Zhang, and Xuan Yu*	**Multi-Authority Attribute-Based Encryption Access Control Scheme with Hidden Policy and Constant Length Ciphertext for Cloud Storage** *Yundong Fan, Xiaoping Wu, and Jiasheng Wang*
16:55 - 17:20	**Zero-Determinant Strategy for Cooperation Enforcement in Crowdsourcing** *Yue Miao, Changbing Tang, Jianfeng Lu, and Xiang Li*	**Outsourced Privacy-Preserving C4.5 Algorithm over Arbitrarily Partitioned Databases** *Ye Li, Zoe L. Jiang, Xuan Wang, S.M. Yiu, and Qing Liao*	**A Sensitive Information Protection Scheme in Named Data Networking Using Attribute-Based Ring-Signcryption** *Tao Feng, and Ningning Liu*
17:20 - 17:45	**A Multi-Modal Hashing Learning Framework for Automatic Image Annotation** *Jiale Wang, and Guohui Li*	**Learning Automata Based Approach for Influence Maximization Problem on Social Networks** *Hao Ge, Jinchao Huang, Chong Di, Jianhua Li, and Shenghong Li*	**Attribute-Based Encryption with Multi-Keyword Search** *Runhe Li, Dong Zheng, Yinghui Zhang, Haonan Su, Menglei Yang, and Pengzhen Lang*

Wednesday, June 28, 2017

Time	**S4: Learning and Mining** **Conference Hall 1** **Co-chairs: Jie Tang and Jin Cao**	**S5: Mobile Computing** **Conference Hall 2** **Co-chairs: Hongli Zhang and Yizhi Ren**	**S6: Network Security 2** **Conference Hall 3** **Co-chairs: Jun He and Zhen Wang**
13:30 - 14:15	**Invited Talk 4: Knowledge Graph Inference Based on Representation Learning** *Bin Wang*	**Invited Talk 5: Software Defined Anything (SDX)** *Yan Zhang*	**Invited Talk 6: Graph Encryption for Exact Shortest Distance Queries** *Qian Wang*
14:15 - 14:40	**A New Approach for Imbalanced Data Classification Based on Minimize Loss Learning** *Chunkai Zhang, Guoquan Wang, Ying Zhou, and Jiayao Jiang*	**Analysis of Android Malware Family Characteristic Based on Isomorphism of Sensitive API Call Graph** *Hao Zhou, Wei Zhang, Fengqiong Wei, and Yunfang Chen*	**A Framework to Construct Knowledge Base for Cyber Security** *Huaijun Shang, Rong Jiang, Aiping Li, and Wei Wang*
14:40 - 15:05	**A Survey on Data Cleaning Methods in Cyberspace** *Jinlin Wang, Hongli Zhang, Binxing Fang, Xing Wang, and Lin Ye*	**FgDetector: Fine-Grained Android Malware Detection** *Dongfang Li, Zhaoguo Wang, Lixin Li, Zhihua Wang, Yucheng Wang, and Yibo Xue*	**A Reputation-Based Resilient and Recoverable P2P Botnet** *Jie Yin, Xiang Cui, and Ke Li*
15:05 - 15:30	**Research on Classification Method of High-Dimensional Class-Imbalanced Data Sets Based on SVM** *Chunkai Zhang, Jianwei Guo, and Junru Lu*	**Cloud-Based Lightweight RFID Mutual Authentication Protocol** *Kai Fan, Qi Luo, Hui Li, and Yintang Yang*	**SRAM: A State-Aware Risk Assessment Model for Intrusion Response** *Fenghua Li, Fangxin Xiong, Chao Li, Lihua Yin, Guozhen Shi, and Boxiu Tian*
15:30 - 15:40	Coffee Break		
15:40 - 16:05	**Extracting Sift Keypoints in DCT Domain** *Chi Fei, Bin Liu, and Nenghai Yu*	**ITM-LB: An Improved Traffic Matrix-Based Load Balancing Routing Algorithm** *Weidong Lin, and Chi Zhang*	**IBF: Interval-Based Fingerprinting for Secret Access Control and Flow Monitoring** *Yuebin Luo, Baosheng Wang, Xiaofeng Wang, and Bofeng Zhang*

16:05 - 16:30	**Semi-Supervised Collective Matrix Factorization for Topic Detection and Document Clustering** *Ye Wang, Yanchun Zhang, Bin Zhou, and Yan Jia*	**Ensemble of Time-Invariant Convolutional LDPC Codes with Moderate Rates** *Liwei Mu*	**Building Endgame Data Set to Improve Opponent Modeling Approach** *Jiajia Zhang, and Hong Liu*
16:30 - 16:55	**Spatio - Temporal Distribution Pattern of Cable Car Passenger Flow in Pan-Holidays: A Case Study of Huangshan Scenic Area** *Wenxing Lu, and Xiao Wei*	**Research on Online Learning of Radar Emitter Recognition Based on Hull Vector** *Weigang Zhu, Meng Li, and Chuangzhan Zeng*	**A Conditional Probability Computation Method for Vulnerability Exploitation Based on CVSS** *Hua Zhang, Fang Lou, Yunsheng Fu, and Zhihong Tian*
16:55 - 17:20	**EMMBTT: A Novel Event Evolution Model Based on TF×IEF and TDC in Tracking News Streams** *Pengpeng Zhou, Bin Wu, and Zhen Cao*	**Saving Energy on Processor Micro-Architecture Level for Big Data Stream Mobile Computing** *Zhiguo Liu, Ni Zhang, Qiu Tang, Ningning Song, Zenming Yu, and Hongbin Zhang*	**ISLUS: An Immediate and Safe Live Update System for C Program** *Zhikun Chen, and Weizhong Qiang*
17:20 - 17:45			**Cyberspace-Oriented Access Control: Model and Policies** *Fenghua Li, Zifu Li, Weili Han, Ting Wu, Lihua Chen, and Yunchuan Guo*

Workshops

W1:BDBA2017 (Big Data and Business Analytics)

W2:PBD2017 (Privacy for Big Data)

W3:CPSSP2017 (Cyber-Physical Systems Security & Privacy)

W4:DSPIoT2107 (Data Security and Privacy in Internet of Things)

W5:DV2017 (Data Visualization)

W6:BDCA2017 (Big Data Cybersecurity Analytics)

W7:DSWA2017 (Data Science and Web Analytics)

W8:MuNFA2017 (Multi-view Network Fusion and Analysis)

Workshop Schedule 1

Monday, June 26, 2017. BDBA 2017, PBD2017, CPSSP2017, DSPIoT2017.

Time	**BDBA2017** **Conference Hall 2** **Chair: Jianshan Sun**	**PBD2017** **Conference Hall 3** **Chair: Fenghua Li**	**CPSSP2017** **Conference Hall 4** **Chair: Jianming Zhu**	**DSPIoT2017** **Conference Hall 5** **Chair: Dong Zheng**
9:00 - 9:20	**Workshop Overview**	**Workshop Overview**	**Keynote: Security and Privacy Challenges in Internet of Things** *Yier Jin*	**Workshop Overview**
9:20 - 9:40	**Sentiment Lexical-Augmented Convolutional Neural Networks for Sentiment Analysis** *Rongchao Yin, Li Peng, and Bin Wang*	**Permutation-Based Tweakable On-Line Cipher with Improved Security Guarantees** *Ping Zhang, and Honggang Hu*		**An Arithmetic View on Generating Necklaces** *Jiantao Wang*
9:40 - 10:00	**A Trusted Power System Network in Electrical Industry** *Mengying Yuan, Xiangzhou Chen, Yang Wang, and Huixia Ding*	**Time Series Discord Discovery under Multi-Party Privacy Preserving** *Chunkai Zhang, Haodong Liu, and Ye Li*	**Formal Analysis of Security Properties of Cyber-Physical System Based on Timed Automata** *Ting Wang, Qi Su, and Tieming Chen*	**Mobile Device Management System Based on AOSP and SELinux** *Xinlong Song, and Chunghuang Yang*
10:00 - 10:20	**Intelligent Discovery of Notable Product Features by Mining Large Scale Online**	**Privacy-Preserving Attribute-Based Encryption Supporting Expressive Access Structures**	**CPS Information Security Risk Evaluation System Based on Petri Net**	**The Efficient Implementation of the Android Kernel with China Standard**

	Reviews *Xin Ni, Yinghui Sai, Anning Wang, and Qiang Zhang*	*Liangxuan Zhang, Hui Li, Yinghui Zhang, and Fawad Khan*	*Yonggui Fu, Jianming Zhu, and Sheng Gao*	**Cryptographic Algorithm** *Yu Shi, Dong Zheng, and Chunghuang Yang*
10:20 - 10:40	**The Influence of Internal Control on Executive Pay-Performance Sensitivity** *Xuan Zhang, and Liang Zuo*	**Design and Implementation of the Components of the Symmetric Cryptographic Algorithm** *Yunfei Ci, Guozhen Shi, Feng Yang, Jiawen Diao, Cuijie Liu, and Weihua Mao*	**Evaluating Network Equipment Information Security Based on D-S Evidence Theory and Principal Components Analysis** *Chao Yuan, Yueming Lu, and Jiefu Gan*	**File-Based Encryption with SM4** *Chan Gao, and Chunghuang Yang*
10:40 - 10:50	Coffee Break			
10:50 - 11:10	**Data Driven Modeling of Continuous Time Information Diffusion in Social Networks** *Liang Liu, Bin Chen, Bo Qu, Lingnan He, and Xiaogang Qiu*	**Privacy Preservation Strategy in Time-Sensitive LBSs** *Weihao Li, Ben Niu, and Hui Li*	**A Defense Mechanism against Location Cheating Attack in Social Network** *Qing Li, Ayong Ye, and Li Xu*	**Anonymous Fair Exchange Protocol with a Semitrusted Third Party** *Lijuan Guo, Xuelian Li, and Xiaolin Lv, and Juntao Gao*
11:10 - 11:30		**Improving Database Storage Usability with the Cloud-Based Architecture** *Cuicui Su, Yongzhi Wang, Yulong Shen, Ke Cheng, and Jiawen Ma*	**Embedding-Based Feature Extraction Methods for Chinese Sentiment Classification** *Sheng Zhang, Hui Wang, Xin Zhang, Jiajun Cheng, Pei Li, and Zhaoyun Ding*	**Verifiable Attribute-Based Multi-Keyword Search over Encrypted Cloud Data in Multi-Owner Setting** *Yaqing Fan, and Zhenhua Liu*
11:30 - 11:50			**Construction of High-Availability Bank System in Virtualized Environments** *Huang Neng*	**MSDB: A Massive Sensor Data Processing Middleware for HBase** *Bowei Liu, Ruizhang Huang, Ting Huang, and Yingying Yan*
11:50 - 12:10			**Range Queries on Two Column Data** *Ce Yang, Weiming Zhang, and Nenghai Yu*	

Workshop Schedule 2

Monday, June 26, 2017. DV2017, BDCA2017, DSWA2017, MuNFA2017.

Time	**DV2017** **Conference Hall 2** **Chair: Wei Xiong**	**BDCA2017** **Conference Hall 3** **Chair: Jian Weng**	**DSWA2017** **Conference Hall 4** **Chair: Weidong Qiu**	**MuNFA2017** **Conference Hall 5** **Chair: Bin Wu**
13:30 - 13:50	**Keynote: Who is the Bad Guy? Catching Users with Anomalous Behaviors via Visual Analysis** *Nan Cao*	**Workshop Overview**	**Keynote: Content and Structure Augmented Network Representation Learning** *Xingquan Zhu*	**Keynote: Knowledge Graph Mining: Heterogeneous Information Network Perspective** *Chuan Shi*
13:50 - 14:10		**CNFL: Categorical to Numerical Feature Learning for Clustering and Classification** *Eric Golinko, Thomas Sonderman, and Xingquan Zhu*		
14:10 - 14:30	**Interactive Network Clustering Layout Method Based on Implicit Connection** *Huaquan Hu, Lingda Wu, and Ronghuan Yu*	**An Information Security Evaluation Method Based on Entropy Theory and Improved TOPSIS** *Dongqing Wang, Yueming Lu, and Jiefu Gan*	**A Deep Recurrent Network for Web Server Performance Prediction** *Jiajun Peng, Zheng Huang, and Jie cheng*	**Temporal Multi-Task Model Framework Using Multi-Source Data for Bonds Credit Assessment** *Jiawei Shi, and Xi Zhang*
14:30 - 14:50	**Visualization of Stay Points in Ship Trajectory Data Using the Space-Time Cube** *Wei Deng, Hao Liu, Tuansheng Yang, and Hao Dong*	**Analysis of Network Attack and Defense Game with the Average Recovery Time as the Quantitative Indicators of the Payment Function** *Yang Sun, and Wei Xiong*	**Joint Dictionary Learning for Person Re-identification** *Yunlu Xu, Jie Guo, and Zheng Huang*	**Social Network Construction of the Role Relation in Unstructured Data Based on Multi-View** *Lili Zhou, Jinna Lv, and Bin Wu*
14:50 - 15:10	**Visualization Study of High-Dimensional Data Classification Based on PCA-SVM** *Zhongwen Zhao, and Huanghuang Guo*	**Implementation and Evaluation of Different Parallel Designs of AES Using CUDA** *Jianwei Ma, Xiaojun Chen, Rui Xu, and Jinqiao Shi*	**Review of iOS Malware Analysis** *Yixiang Zhu, and Kang Zhang*	**Extracting Topics Based on Word2Vec and Improved Jaccard Similarity Coefficient** *Chunzi Wu, and Bai Wang*
15:10 - 15:30	**Auto-Encoder Based for High Spectral Dimensional Data Classification and Visualization**	**Detecting Congestion and Detour of Taxi Trip via GPS Data** *Junfeng Tu, and Yucong Duan*	**SpongeMPH: A New Multivariate Polynomial Hash Function Based on the Sponge Construction**	**Open Relation Extraction Based on Core Dependency Phrase Clustering** *Chengsen Ru, Shasha Li, Jintao*

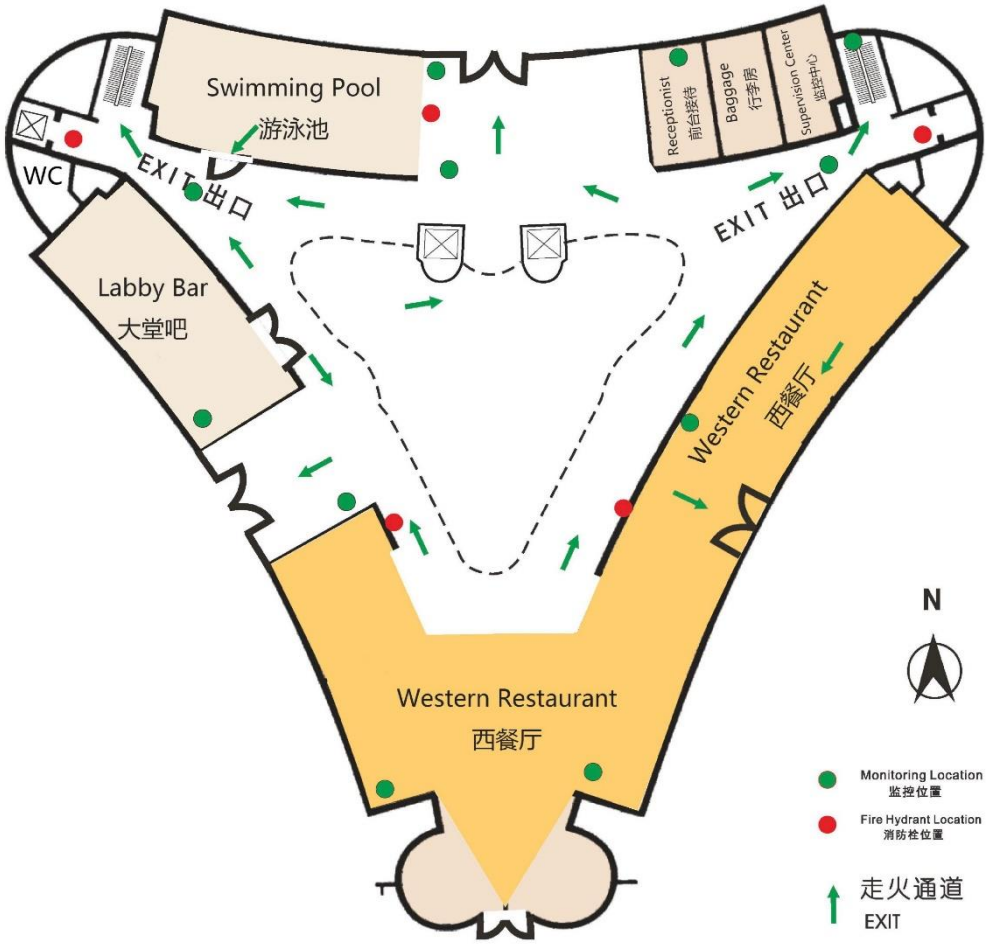
	Jiang Zhu, Lingda Wu, Hongxing Hao, Xiaorui Song, and Yi Lu		*WeiJie Li, GuoHong Liao, Yamin Wen, and Zheng Gong*	*Tang, Yi Gao, and Ting Wang*
15:30 - 15:40	Coffee Break			
15:40 - 16:00	**Research on the Space-Based Integrated Information Network Evolution Model Visualization Methods Based on the Super Network Theory** *Chengxiang Liu, and Wei Xiong*	**Framework of Probabilistic Risk Assessment for Security and Reliability** *Qisi Liu, Liudong Xing, and Chaonan Wang*	**An Adaptive Honeypot Deployment Algorithm Based on Learning Automata** *Yan Zhang, Chong Di, Zhuoran Han, Yichen Li, and Shenghong Li*	**The CRFs-Based Chinese Open Entity Relation Extraction** *Xiaoyang Wu, and Bin Wu*
16:00 - 16:20	**Research on Multi - Resolution Isosurface Extraction Method for 3D Scalar Field** *Ronghuan Yu, Wei Xie, Lingda Wu, and Hongxing Hao*	**Fast Copy-Move Detection of Digital Audio** *Zihan Liu, and Wei Lu*	**Big Data for Social Media Evaluation - A Case of Wechat Platform Rankings in China** *Qian Liu, Jingsi Ni, Jing Huang, and Xiaochuan Shi*	
16:20 - 16:40	**Two-layer Network Visualization for Comprehensive Analysis** *Yingmei Wei, and Xiaolei Du*			
16:40 - 17:00	**Tasks for Visual Analytics in Multilayer Networks** *Xitao Zhang, Lingda Wu, Huaquan Hu, and Shaobo Yu*			
17:00 - 17:20	**A Movie Summary Generation System** *Yuxiang Xie, Xidao Luan, Jingmeng He, Lili Zhang, Xin Zhang, and Chen Li*			
17:20 - 17:40	**Research and Application of the Test Data Visualization** *Hui Yan, Junfeng Wang, and Chensen Xia*			

Conference Venue

1# - First Floor Plan – Airland Therapedic Hotel:

AIRLAND HOTEL

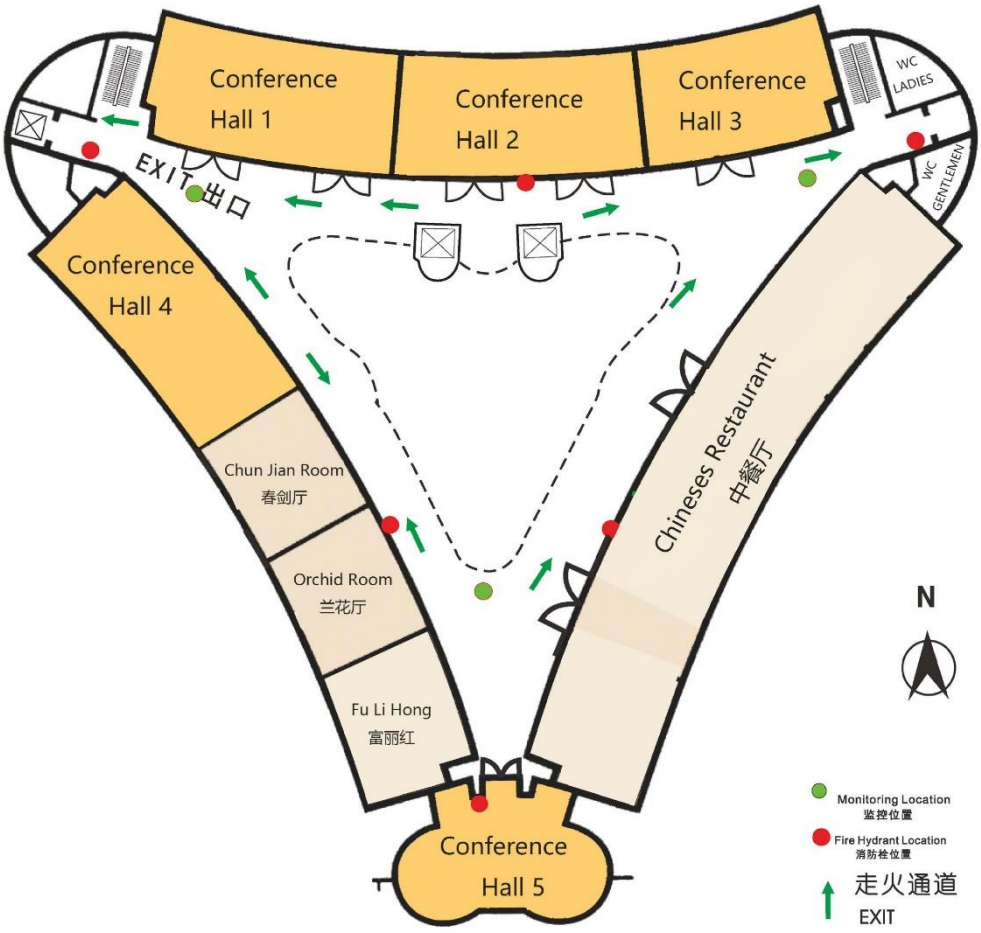
1#-First Floor Plan



1# - Second Floor Plan - Airland Therapedic Hotel:

AIRLAND HOTEL

1#-Second Floor Plan



2# - First Floor Plan - Airland Therapedic Hotel：

AIRLAND HOTEL

2#-First Floor Plan