2017 IEEE Cyber Science and Technology Congress (CyberSciTech)

15th IEEE Intl Conf on Dependable, Autonomic and Secure Computing (DASC)

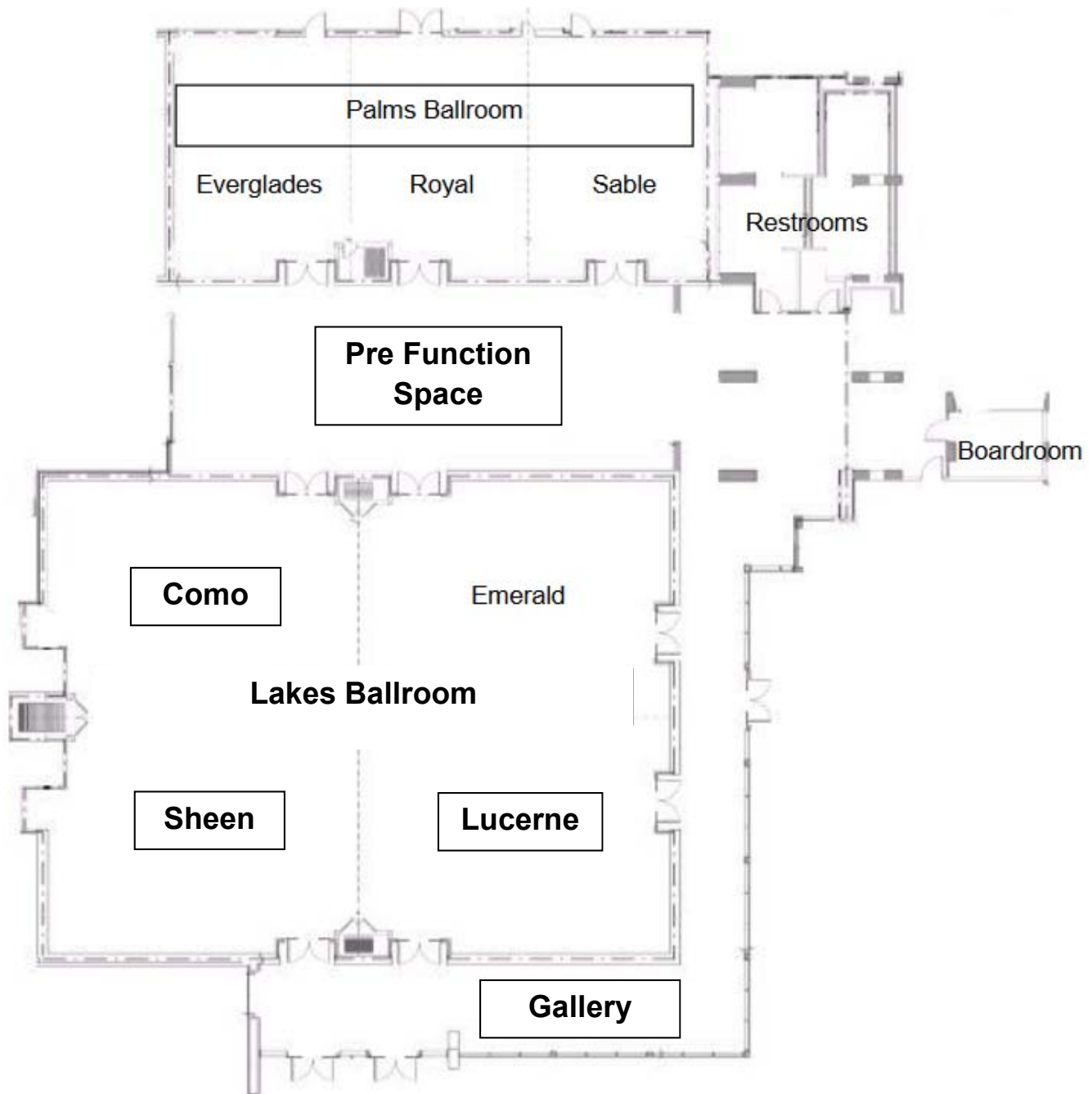**15th IEEE Intl Conf on Pervasive Intelligence and Computing (PICom)**

3rd IEEE Intl Conf on Big Data Intelligence and Computing (DataCom)

Venue: Holiday Inn Orlando-Disney Springs, USA   Date: 6th-10th November 2017

Table of Contents

Conference Venue Floor Map

Presentation Guidelines

1) Regular Paper: 20 min = 15 min Presentation+5 min Q&A.

2) Short, Workshop & Special Session Papers: 15 min = 12 min Presentation+3 min Q&A.

A laptop PC will be provided in each of the conference room. Please report to your session chair and upload your presentation slides ten minutes before your session begins.

3) Posters: One A1-size poster stand (portrait style) will be provided for each presenter.

Day 1 (Monday, 6th November 2017)	
10:00-18:00	Registration /**Pre Function Space**
13:00-15:00	Tutorial I /**Como/Sheen**
15:00-15:30	Afternoon tea
15:30-17:30	Tutorial I /**Como/Sheen**
18:00-20:00	Welcome reception /**Royal/Sable meeting room**

Day 2 (Tuesday, 7th November 2017)				
Time	**Room 1 /Sheen**	**Room 2 /Lucerne**	**Room 3 /Emerald**	**Room 4 /Como**
08:00-18:00	Registration /**Pre Function Space**			
08:30-09:20	CyberSciTech/DASC/PICom/DataCom Conference Opening /**Lakes Ballroom**			
09:20-10:00	Keynote I /**Lakes Ballroom**			
10:00-10:40	Keynote II /**Lakes Ballroom**			
10:40-11:00	Morning tea /**Pre Function Space**			
11:00-12:00	CyberSciTech/PICom/DataCom Poster Session /**Gallery**			
12:00-13:00	Lunch /**Palm Breezes Restaurant**			
13:00-15:20	DataCom-1	CyberSciTech-1	DASC-1	PICom-1
15:20-15:40	Afternoon tea /**Pre Function Space**			
15:40-18:00	DataCom-2	CyberSciTech-2	DASC-2	PICom-2

Day 3 (Wednesday, 8th November 2017)				
Time	**Room 1 /Sheen**	**Room 2 /Lucerne**	**Room 3 /Emerald**	**Room 4 /Como**
08:30-18:00	Registration /**Pre Function Space**			
08:40-09:30	Keynote III /**Lakes Ballroom**			
09:30-10:10	Keynote IV /**Lakes Ballroom**			
10:10-10:30	Morning tea /**Pre Function Space**			
10:30-12:00	Joint Panel /**Lakes Ballroom**			
12:00-13:00	Lunch /**Palm Breezes Restaurant**			
13:00-15:20	DataCom-3	CyberSciTech-3	DASC-3	PICom-3
15:20-15:40	Afternoon tea /**Pre Function Space**			
15:40-18:00	DataCom-4	CyberSciTech-4	DASC-4	Cyber-ESEH
19:00-22:00	Banquet /**Lakes Ballroom**			

Day 4 (Thursday, 9th November 2017)				
Time	**Room 1 /Sheen**	**Room 2 /Lucerne**	**Room 3 /Emerald**	**Room 4 /Como**
08:30-16:00	Registration /**Pre Function Space**			
08:50-09:40	Keynote V	Cyber-SC & Cyber-EA	DASC-5	Cyber-ACE
09:40-10:20	Keynote VI			
10:20-10:40	Morning tea /**Pre Function Space**			
10:40-11:20	Keynote VII	Cyber-IoT	DASC-S1	PICom-S1
11:20-12:00	Keynote VIII			
12:00-13:00	Lunch /**Palm Breezes Restaurant**			
13:00-15:20	DataCom-5	CyberSciTech-5	DASC-S2	DataCom-7
15:20-15:40	Afternoon tea /**Pre Function Space**			
15:40-18:00	DataCom-6	CyberSciTech-S1	DASC-S3	DataCom-S1
18:00-18:20	Conference Closing			

Day 5 (Friday, 10th November 2017)	
09:30-11:30	Research visit and discussion at UCF

2017 CyberSciTech/DASC/PICom/DataCom Program Preview

Tutorials
Tutorial I: Xiaolin Li, University of Florida, USA

Deep Learning: Towards Intelligence-Driven Society

Tutorial II: Wenbing Zhao, Cleveland State University, USA

Human Activity and Emotion Tracking with Microsoft Kinect and Wearable Devices

Keynotes
Keynote I: Kien Hua, University of Central Florida, USA

Emerging Cyber-Human Workplaces with Internet of Things: Challenges and Opportunities

Keynote II: Mohammed Atiquzzaman, University of Oklahoma, USA

IP-based Data Communications with Space: Protocols and Security Issues

Keynote III: Scott Klasky, The University of Tennessee, Knoxville, USA

Enhancing Scientific Data Management for Exascale

Keynote IV: Yanchun Zhang, Victoria University, Australia

Smart Health: Medical Data Mining and Innovative Applications in Patient Monitoring and Aging Care

Keynote V: Feng Xia, Dalian University of Technology, China

Embracing Computational Social Science: In the Name of Data

Keynote VI: Flavia C. Delicato, Federal University of Rio de Janeiro, Brazil

On the Integration of Wireless Sensor Networks, Cloud Computing and the Internet of Things

Keynote VII: Geyong Min, University of Exeter, UK

Data-Driven Knowledge Discovery and Intelligence for Future Internet

Keynote VIII: Rich Wolski, University of California, Santa Barbara (UCSB), USA

Multi-scaling the Cloud for the Internet of Things

Joint Panel
Topic: Prospect Cybermatics in 2025: From Cyber-X to Cyber Sciences

Panel Moderators:

Zhong Chen, Beijing University, China

Runhe Huang, Hosei University, Japan

Panelists:

Stephen S. Yau, Arizona State University, USA

Frank Hsu, Fordham University, USA

Yi Pan, Georgia State University, USA

Paulo Pires, Federal University of Rio de Janeiro, Brazil

Yanchun Zhang, Victoria University, Australia

Klimis Ntalianis, Athens University of Applied Sciences, Greece

CyberSciTech 2017 Sessions

CyberSciTech Session 1: Cyber Human Science and Computing

CyberSciTech Session 2: Cyber Physical Computing and Systems I

CyberSciTech Session 3: Cyber Physical Computing and Systems II

CyberSciTech Session 4: Cyber Science and Fundamentals

CyberSciTech Session 5: Cyber Communications and Security

CyberSciTech Short Paper Session

CyberSciTech Poster Paper Session

Cyber-ESEH: Special Session on Cyber-Enabled Smart Environment and Healthcare

Cyber-IoT: Special Session on Computing and Applications for Cyber Internet of Things

Cyber-SC&Cyber-EA: Special Session on Cyber Social Computing and Cyber-Enabled Applications

Cyber-ACE: Workshop on Cyber Apps, Cyber and Economy

DASC 2017 Sessions

DASC Session 1: Secure Computing I

DASC Session 2: Secure Computing II

DASC Session 3: Autonomic Computing

DASC Session 4: Dependable Computing

DASC Session 5: Real-time Systems

DASC Short Paper Session 1: Dependable Computing

DASC Short Paper Session 2: Secure Computing I

DASC Short Paper Session 3: Secure Computing II

PICom 2017 Sessions

PICom Session 1: IoT, Cloud and Mobile Computing

PICom Session 2: Services for Pervasive Computing

PICom Session 3: Pervasive Intelligence

PICom Short Paper Session

PICom Poster Paper Session

DataCom 2017 Sessions

DataCom Session 1: Deep Learning and Large Scale Systems

DataCom Session 2: Big Data Science, Theorems and Analytics I

DataCom Session 3: Big Data Science, Theorems and Analytics II

DataCom Session 4: Big Data Analysis and Complex Applications I

DataCom Session 5: Big Data Analysis and Complex Applications II

DataCom Session 6: Big Data Infrastructure, Clouds and HPC I

DataCom Session 7: Big Data Infrastructure, Clouds and HPC II

DataCom Short Paper Session

DataCom Poster Paper Session

General Executive Chair Message

Welcome to the 2017 confederated Cyber Science and Technology Congress, four co-located conferences, the 15th International conference on Dependable, Autonomic and Secure Computing (DASC), the 15th International conference on Pervasive Intelligence and Computing (PIcom), the 3rd International conference on Big Data Intelligence and Computing (Datacom) and the 2nd International conference on CyberSciTech, held November 6th – 10th in Orlando, Florida, USA., one of the largest convention centers in the nation and world. As with past conferences, we hope to excite and inspire attendees with the many events scheduled as part of Cyber Science and Technology Congress 2017. Many individuals and organizations contributed to the success of this conference. We would like to acknowledge the tremendous efforts of the Cyber Science and Technology Steering Committee and the Executive Committee, in particular its Chairs, Jianhua Ma and Laurence Yang.

We are also particularly grateful this year for the service of several leaders who have played key organization roles in each co-located conference. Our gratitude goes to who served as the DASC PC chair Dr. Md Zakirul Alam Bhuiyan, Fordham University, USA; the PICom PC chairs Drs. Flavia C. Delicato, Federal University of Rio de Janeiro, Brazil and Liqiang Wang, University of Central Florida, USA; the Datacom advisory committee chair Dr. Robert Ching-Hsien Hsu, Chung Hua University, Taiwan, PC co-chairs Drs. Xiaolin Li, University of Florida, USA and Anna Kobusińska, Poznan University of Technology, Poland; the CyberSciTech PC chair Dr. Kevin I-Kai Wang, The University of Auckland, New Zealand.

Tremendous thanks go to many local organizers from University of Central Florida, Big Data Computer Systems research named CASS laboratory members, our Registration Chair, Dr. Jian Zhou, our Local Arrangement Chair, Dan Huang, our Financial Chair, Xunchao Chen, our IEEE CPS publication Chair, Mao Ye, our Facilities Chair, Xuhong Zhang, and our Poster Chair, Dr. Deliang Fan, for their tireless efforts and for dedicated work behind the scenes in support of our event. Tremendous thanks also to several industrial philanthropists President Jimmy Z. Wang from jiemeigroup.com, Kevin Wang from crystalindustries.com, and Dr. Jianglin Yin from Apple.com, for their generous donation to the conference. We are also grateful to our sponsors at IEEE and IEEE Technical Committee of Scalable Computing.

We wish to thank the entire conference committee for handling the many aspects of the conference, and we also wish to recognize the student volunteers. Without the strong volunteerism in this community, we would not be able to make the conference a reality. It has been our great honor and pleasure to accept the responsibilities and challenges of serving as the General Executive Chair. We hope that the conference will be a stimulating, informative, enjoyable, and fulfilling experience to all who attend.

Jun Wang
General Executive Chair of CyberSciTech, DASC, PICom, DataCom 2017
University of Central Florida, USA

Message from CyberSciTech 2017
Program Chairs and General Chairs

It is our honor and pleasure to welcome you to the 2017 IEEE Cyber Science and Technology Congress (CyberSciTech 2017) held in Orlando, Florida, USA, on November 6-10, 2017. As the organizing chairs of CyberSciTech 2017, we would like to extend our warmest welcome to all the participants.

In modern society, digitization is everywhere and is becoming an inseparable part of our physical world and daily life. This trend has led to the emergence of a new paradigm on global information processing and communication infrastructures known as the Cyberspace, which is the new frontier that seamlessly brings together digital, physical, social and mental spaces. Cyberspace is evolving to become an integral part of our daily life. As expected, this whole concept of cyberspace brings new challenges that need to be tackled. To address these continuously emerging challenges, there is a need to establish new sciences and research portfolios that incorporate cyber-physical, cyber-social and cyber-mental science together in a coherent manner to deliver the vision of Cyberspace. The aim of CyberSciTech 2017 is to offer a common platform for scientists, researchers and engineers to exchange their latest ideas and research outcomes in technology and science. It is also a venue to exchange the latest advances in cyberspace studies with the broad scope of cyber-related topics on sciences, technologies and applications.

CyberSciTech 2017 is sponsored by IEEE and IEEE Computer Society. It is co-located with the 15th IEEE International Conference on Dependable, Autonomic and Secure Computing (DASC 2017), the 15th IEEE International Conference on Pervasive Intelligence and Computing (PICom 2017), and the 3rd IEEE International Conference on Big Data Intelligence and Computing (DataCom 2017). CyberSciTech 2017 consists of four main research tracks related to the following areas or topics: Cyber Science and Fundamentals, Cyber Physical Computing and Systems, Cyber Social Networks and Computing, and Cyber Mind and Mental Computing. CyberSciTech 2017 received more than 90 submissions covering a wide range of topics. Finally, 29 high quality regular papers, 10 short papers, 6 poster papers, and 21 papers in five special sessions/workshops have been accepted. All accepted papers are selected based on a rigorous peer review process.

For every successful conference, it takes a team effort from a group of people. We would like to take this opportunity to thank all the members of the organizing committee, especially the Honorary Chairs Dr. Mazin Yousif and Prof. Albert Zomaya; the Steering Chairs Prof. Jianhua Ma, Prof. Qun Jin and Prof. Laurence Yang; and the General Executive Chair Prof. Jun Wang, for their resourceful guidance and efficient cooperation. We would also like to thank the Special Session Chairs Dr. Qingyong Li and Dr. Naohiro Hayashibara, and all the Special Session Organizers for their great effort in organizing the special sessions and enriching the scope of our discussion. Last but not least, we want to express our sincere thanks to all of the authors, PC members, and many others who greatly contributed to CyberSciTech 2017 in many different ways.

We sincerely hope all of you find CyberSciTech 2017 stimulating and helpful to your future research work and research network building. Please enjoy your visit and stay in beautiful Orlando!

Kevin I-Kai Wang and Boon-Chong Seet
Program Chairs of CyberSciTech 2017

Song Guo and Yi Qian
General Chairs of CyberSciTech 2017

Message from DASC 2017
Program Chairs and General Chairs

Welcome to the 15th IEEE International Conference on Dependable, Autonomic and Secure Computing (DASC-2017), November 6-10, 2017 in Orlando, Florida, USA, technically sponsored by IEEE, co-located with CyberSciTech 2017, IEEE DataCom 2017, and IEEE PiCom 2017.

It is our great pleasure to hold DASC-2017! On behalf of the organizing committee of DASC-2017, we would like to express to all participants who attend the conference and the associated symposia and workshops, our cordial welcome and gratitude.

As computer systems become increasingly large and complex, their Dependability, Security and Autonomy play critical role at supporting next-generation science, engineering, and commercial applications. These systems consist of heterogeneous software/hardware/ network components of changing capacities, availability, and in varied contexts. They provide computing services to large pools of users and applications, and thus are exposed to a number of dangers such as accidental/deliberate faults, virus infections, malicious attacks, illegal intrusions, natural disasters, etc. As a result, too often computer systems fail, become compromised, or perform poorly and therefore untrustworthy. Thus, it remains a challenge to design, analyse, evaluate, and improve the dependability and security for a trusted computing environment. Trusted computing targets computing and communication systems as well as services that are autonomous, dependable, secure, privacy protectable, predictable, traceable, controllable, assessable and sustainable.

The scale and complexity of information systems evolve towards overwhelming the capability of system administrators, programmers, and designers. This calls for the autonomic computing paradigm, which meets the requirements of self-management by providing self-optimization, self-healing, self-configuration, and self-protection. As a promising means to implement dependable and secure systems in a self-managing manner, autonomic computing technology needs to be further explored. On the other hand, any autonomic system must be trustworthy to avoid the risk of losing control and retain confidence that the system will not fail. Trusted and autonomic computing and communications need synergistic research efforts covering many disciplines, ranging from computer science and engineering, to the natural sciences and the social sciences. It requires scientific and technological advances in a wide variety of fields, as well as new software, system architectures, and communication systems that support the effective and coherent integration of the constituent technologies.

DASC-2017 aims to bring together computer scientists, industrial engineers, and researchers to discuss and exchange experimental and theoretical results, novel designs, work-in-progress, experience, case studies, and trend-setting ideas in the areas of dependability, security, trust and/or autonomic computing systems.

In DASC-2017, we received a large number of submissions, showing by both quantity and quality that DASC is a premier conference on pervasive computing. We have three tracks in DASC-2017. In the first stage, all papers in all tracks submitted were screened for their relevance and general submission requirements. These manuscripts then underwent a rigorous peer review process with at least three reviewers per paper. At the end 30 papers and 23 short/WiP/Workshop papers were accepted for presentation and included in the main proceedings. To encourage and promote the work presented at DASC-2017, we are delighted to inform the authors that some of the papers will be accepted in special

issues of several international reputable journals. All of these journals have played a prominent role in promoting the development and use of pervasive computing and ubiquitous intelligence.

An international conference of this scale requires the support of many people. First of all, we would like to thank the Steering Chairs, Prof. Jianhua Ma and Prof. Laurence T. Yang, for nourishing the conference and guiding its course. Thanks to all reviewers for their valuable time and effort in reviewing the papers. Without their help, this program would not be possible. Thanks also go to the entire local arrangement committee members, including Executive Chair Prof. Jun Wang and Dr. Jian Zhou for their help in making the conference a wonderful success. Special thanks go to Dr. Jian Zhou and Zihao Jiang for their help with the conference web, paper submission, and so on, which facilitated the overall process. We take this opportunity to thank all the authors, participants and session chairs for their valuable efforts, many of whom need to travel long distances to attend this conference and make their valuable contributions. Last but not least, we would like to express our gratitude to all of the organizations that supported our efforts to bring the conference to fruition. We are grateful to IEEE for publishing the proceedings.

DASC-2017 held in a walking distance of a world famous place, the Walt Disney Land, to remind our honorary guests that besides the academic nature of the conference, the whole area is ample with beautiful scenic spots. We are grateful to all of you for participating in DASC-2017, and we hope that you will find the conference stimulating and constructive and at the same time enjoy this magnificent city in the USA! We are proud to have you to sharing your research with other fellows.

Md Zakirul Alam Bhuiyan
Program Chair of DASC 2017

Naohiro Hayashibara, Paulo Pires, and Yier Jin
Program Co-Chairs of DASC 2017

Nobuyasu Kanekawa and Mohammad Zulkernine,
General Chairs of DASC 2017

Message from PICom 2017
Program Chairs and General Chairs

It is our great pleasure to welcome you to the 15th IEEE International Conference on Pervasive Intelligent and Computing (PICom 2017). We are experiencing a moment in human history in which technological innovations take place at an unprecedented pace. Emerging technologies have the potential to change the way people live individually and in society, and how they interact with the environment. One major advance in contemporary computing is the ability to build systems that are increasingly intelligent and more integrated into people's daily lives, permeating the most varied processes and decision-making with intelligence and autonomy. In this context, computational intelligence is a key concept. Over the last fifty years, computational intelligence has evolved from logic-based artificial intelligence, nature-inspired soft computing, social-oriented agent technology to cyber-physical integrated ubiquitous intelligence towards Pervasive Intelligence. PICom aims to cover all dimensions of these intelligent paradigms as well as their applications in various pervasive computing domains. PICom scope includes ubiquitous intelligence, social Intelligence, machine learning, big data, Internet of Things, cloud computing, context-aware computing, pervasive security, to name a few.

Since its first edition in 2003, PICom has been established as a premier conference on pervasive computing. This year, we received many high-quality submissions, that underwent a rigorous peer review process with at least three reviewers per paper. At the end, 17 papers were accepted as full papers, which result in an acceptance rate of 37%. Many good papers that did not seem appropriate for the full paper track were forwarded to other tracks. To encourage authors and promote the work presented at PICom, we are delighted to inform that a selection of the best papers accepted and presented at the conference will be invited for special issues of reputable journals. These journals have played a prominent role in promoting the development and use of pervasive computing and ubiquitous intelligence.

An international conference of this scale requires the support of many people. First, we would like to thank the Steering Chairs, Prof. Jianhua Ma and Prof. Laurence T. Yang, for nourishing the conference and guiding its course. Our heartfelt thanks to our General Executive Chair, Prof. Jun Wang, for his tireless efforts in organizing the conference. We are also indebted to the members of the program committee, who have put in hard work and long hours to review each paper in a professional way. Thanks to them all for their valuable time and effort in reviewing the papers. Without their help, this program would not be possible. Special thanks go to Zihao Jiang for his prompt support to manage the conference Web page. Thanks to the entire local arrangement committee for their help in making the conference a wonderful success. We also take this opportunity to thank all the authors, participants and session chairs for their valuable efforts. We are also grateful to IEEE for publishing the proceedings.

The 2017 edition of PICom is held in the exciting city of Orlando, right in the center of one of the largest clusters of attractions and entertainment in the world. We hope that participants will enjoy, in addition to learning opportunities and academic and professional interactions, many local attractions.

Flavia C. Delicato and Liqiang Wang
Program Chairs of PICom 2017

Adnan Al-Anbuky and Zhikui Chen
General Chairs of PICom 2017

Message from DataCom 2017
Program Chairs and General Chairs

It is our great honour and pleasure to welcome you to the 2017 IEEE International Conference on Big Data Intelligence and Computing (IEEE DataCom-17), hosted in Orlando, Florida, USA, from 6th to 10th November 2017.

DataCom is one of the major annual events that covers important and contemporary topics from the fields of big data intelligence and technologies, as diverse as big data tools and deployment platforms, datamining techniques, privacy and security, data analytics and visualization techniques, algorithmic aspects, and innovative applications. Provision of above topics presents a new set of emerging issues and challenges that are expected to be identified and addressed by the research community. Hence, DataCom strives to constitute a leading edge international forum for engineers and scientists from academia, industry and government to share their views on current research problems, to present and discuss their novel ideas, research results, and experience on all aspects of big data intelligence, computing and novel applications, as well as to identify new research topics. This year, IEEE DataCom 2017 is held together with the IEEE DASC / IEEE PICom / IEEE CyberSciTech. In response to the call for papers, 116 papers were submitted to DataCom 2017. These papers were evaluated on the basis of their significance, novelty, technical quality, and practical impact. 46 high quality papers were accepted to the main track as full research paper with acceptance rate of 39% and with average of almost 3 reviews per paper. Moreover, some poster and short papers were accepted. They reflect emerging work in new important areas on Big Data Intelligence and Computing and shall provide a stimulus for their proper growth.

For the successful organization of an international conference of the size and diversity, we counted on the great support of many people and organizations. We would like to thank all who have helped in making DataCom 2017 a success. First of all, we would like to take the opportunity to express our deep gratitude and to sincerely thank Prof. Robert Hsu and the steering committee of DataCom for their support, guidance, and their contribution to attracting high quality papers. We are very grateful to the General Executive Chairs, Prof. Jun Wang and Prof. Tao Li for their great help in many of the critical details, which facilitated the overall process. Their substantive competence and tireless dedication to this conference are unparalleled. We would like to extend our appreciation to the program committee members and the external reviewers for providing tremendous valuable expertise and constructive comments to take the responsibility for the quality of paper reviewing process in a narrow time schedule. Thanks also go to the entire local team, who have all worked extremely hard for the details of important aspects of the conference program and social activities. Most importantly, we would like to thank all of the authors, participants and session chairs for their valuable efforts to ensuring that DataCom has a program of high technical quality. Many of them traveled long distances to attend this symposium and make their valuable contributions.

It was our great honor and pleasure to accept the responsibilities and challenges of Conference General and Program Chairs. We thank all of you for participating in IEEE DataCom 2017, and hope that you find the conference stimulating and interesting for your research and professional activities.

Anna Kobusinska, Xiaolin Li, Wenguang Chen
Program Chairs of IEEE DataCom 2017
Sanjay Ranka, Hai Jin, Manu Malek
*General Chairs of IEEE DataCom 2017*

Nov 6 (Day 1) 13:00-15:00 Tutorial 1

Deep Learning: Towards Intelligence-Driven Society

Prof. Xiaolin Andy Li
University of Florida, USA
http://www.andyli.ece.ufl.edu

Abstract: The tremendous big data generated from natural systems, engineered systems, and life demand new capabilities in algorithms and systems to explore insights and make decisions. The best solution so far is Deep Learning (DL), the key driving force behind the emerging AI renaissance. In the past 10 years, DL has attracted tremendous enthusiasm in both academia and industry, winning numerous competitions in computer vision, natural language processing, speech recognition, and games. In this tutorial, we will give an overview of deep learning algorithms, models, and architectures. Under the DL framework, we will present vanilla deep neural networks, convolutional neural networks, recurrent neural networks, deep reinforcement learning, Bayesian deep learning, and advanced architectures with adversarial, attention, generative, memory, and other auxiliary networks. Key applications in precision medicine, drug discovery, self-driving, and security will be highlighted in addition to the conventional computer vision and NLP applications. Representative DL packages (Caffe, Keras, MXNet, PyTorch, and TensorFlow) will also be introduced.

Biography: Dr. Xiaolin Andy Li is a Professor and University Term Professor in the Department of Electrical and Computer Engineering at the University of Florida. He is the founding director of National Science Foundation Center for Big Learning (CBL) with UF, CMU, Oregon, and UMKC, the first NSF center on large-scale deep learning, http://nsfcbl.org. He is also the director of Large-scale Intelligent Systems Laboratory (Li Lab). His research interests include cloud computing, big data, deep learning, intelligent platforms, and applications in precision medicine, health, IoT/CPS, and security & privacy. He has published over 100 peer-reviewed papers in journals and conference proceedings, 5 books, and 4 patents (3 licensees). His research has been sponsored by National Science Foundation (NSF), National Institutes of Health (NIH), Department of Homeland Security (DHS), Department of Energy (DOE), and others. He received a PhD degree in Computer Engineering from Rutgers University. He is a recipient of the National Science Foundation CAREER Award in 2010, the Internet2 Innovative Application Award in 2013, NSF I-Corps Top Team Award in 2015, the CAGI Challenge on Detecting Bipolar Disorder Top Team Award (DeepBipolar) in 2016, and best paper awards (IEEE ICMLA 2016, IEEE SECON 2016, ACM CAC 2013 and IEEE UbiSafe 2007).
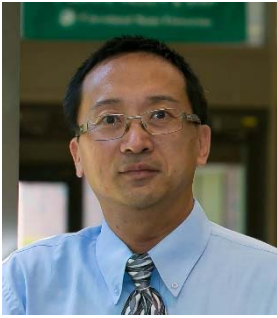
Nov 6 (Day 1) 15:30-17:30 Tutorial 2

Building Human-Centered Cyber-Physical Systems with Microsoft Kinect and Wearable Devices

Prof. Wenbin Zhao
Cleveland State University, USA
http://academic.csuohio.edu/zhao_w/

Abstract: This tutorial covers emerging topics on how to use Microsoft Kinect and commercial-off-the-shelf wearable devices such as Smart Watches and Microsoft Band for innovative human-centered cyber-physical systems. This tutorial will contain the following topics: (1) Human motion tracking with Microsoft Kinect; (2) Gesture and activity recognition algorithms based on Kinect data; (3) Applications of Microsoft Kinect in research; (4) Human activity recognition and sleep tracking using inertial sensors; (4) Affective computing based on data collected from consumer-grade devices. This tutorial will enable participants to understand cutting-edge depth sensing and wearable computing technologies, learn various algorithms for human activity recognition, and learn how to build human-centered cyber-physical systems with real-time sensing, decision making, and feedback**.**

Biography: Dr. Zhao is a full Professor at the Department of Electrical Engineering and Computer Science, Cleveland State University. He earned his Ph.D. at University of California, Santa Barbara in 2002. Dr. Zhao has been doing research on smart and connected health since 2010. He has an active sponsored research grant on building a Kinect-based system to enhance safe patient handling in nursing homes, and has taught several sections of a course on Kinect application development at Cleveland State University. Dr. Zhao has over 150 peer-reviewed publications, and a US patent (pending) on privacy-aware human activity tracking. He has served on several NSF panels for the smart and connected health, and the smart and autonomous systems programs. He served as the Program Chair for IEEE Smart World Congress (Toulouse, France) in 2016. Dr. Zhao is a member of the IEEE SMC TC on Cybermatics for Cyber-enabled Worlds.

Nov 7 (Day 2) 9:20-10:00 Keynote Speaker I

Emerging Cyber-Human Workplaces with Internet of Things:
Challenges and Opportunities

Professor Kien A. Hua
University of Central Florida, USA
http://www.cecs.ucf.edu/faculty/kien-hua/

Abstract. The Internet of things (IoT) with 34 billion connected devices by 2020 will generate more 'big data' than ever. While Cloud Computing has been a viable solution for processing and analyzing very large volumes of data, dealing with billions of live data sources continuously feeding from all "corners" of the Internet would make it a serious bottleneck for IoT analytics in the cloud. In particular, on-demand video streaming already takes up 70% of Internet traffic. Non-stop streaming of IoT data will add substantially more stress on the Internet if IoT applications are not deployed responsibly. In this presentation, we discuss potential solutions for this emerging challenge as video streaming and IoT streaming coalesce. We re-examine conventional wisdom in network design and consider a new concept called traffic deduplication; and we present a Deduplication Overlay Network (DON) that shows congestion can surprisingly be turned into advantage. Another great IoT challenge is due to 'thing' heterogeneity (i.e., the diversity of cameras and sensors) and a new computation model is needed for heterogeneous data stream processing. We discuss this capability in an IoT architecture based on a Boolean abstraction. A Boolean query-processing framework is also presented as a potential standard approach for applications to share IoT infrastructure. These features are part of ThingStore, an online ecosystem for development and deployment of IoT applications. While an IoT environment fusing human and machine intelligence opens up a host of new opportunities, the human teams may be overwhelmed trying to keep up with massive amount of real-time information. This calls for new communication and collaboration tools to enable the human teams to deal with information overload in real-time decision making. Tabletop, a virtual multimedia conferencing system, is one such environment to support teamwork in an IoT-enabled human-cyber workplace. The team members can not only share and discuss multimedia information, but also cooperate on IoT devices as they collaborate. A short video will be presented to demonstrate this Tabletop system.

Biography. **Dr. Kien A. Hua** is a Pegasus Professor and Director of the Data Systems Lab at the University of Central Florida. He was the Associate Dean for Research of the College of Engineering and Computer Science at UCF. Prior to joining the university, he was a Lead Architect at IBM Mid-Hudson Laboratory, where he led a team of senior engineers to develop a highly parallel computer system, the precursor to the highly successful commercial parallel computer known as SP2. Currently, Prof. Hua is also serving as a domain expert on spaceport technology at NASA.

Prof. Hua received his B.S. in Computer Science, and M.S. and Ph.D. in Electrical Engineering, all from the University of Illinois at Urbana-Champaign, USA. His diverse expertise includes network and wireless communications, Internet of Things, data analytics, image/video computing, medical imaging, mobile computing, sensor networks, spaceport technology, and intelligent transportation systems. He has published widely with 13 papers recognized as best/top papers at conferences and a journal. Many of his research have had significant impact. His paper on Chaining technique began the peer-to-peer data sharing and video streaming revolution. His Skyscraper Broadcasting, Patching, and Zigzag techniques have each been heavily cited in the literature, and have inspired many commercial systems in use today. Prof. Hua has served as a Conference Chair, an Associate Chair, and a Technical Program Committee Member of numerous international conferences, and on the editorial boards of several professional journals. He is currently organizing the 2018 IEEE International Conference on Cloud Engineering (IC2E) and serving as a General Co-Chair. Prof. Hua is a Fellow of IEEE.

Nov 7 (Day 2) 10:00-10:40 Keynote Speaker II

IP-based Data Communications with Space: Protocols and Security Issues

Professor Mohammed Atiquzzaman
University of Oklahoma
http://www.cs.ou.edu/~atiq/

Abstract: Data communications between Earth and spacecrafts, such as satellites, have traditionally been carried out through dedicated links. Shared links using Internet Protocol-based communication offers a number of advantages over dedicated links. The movement of spacecrafts however gives rise to mobility management issues.

This talk will discuss various mobility management solutions for extending the Internet connection to spacecrafts. The talk with provide an overview of the network layer based solution being developed by the Internet Engineering Task Force and compare with the transport layer based solution that have been developed at University of Oklahoma in conjunction with the National Aeronautics and Space Administration. Network in motion is an extension of the host mobility protocols for managing the mobility of networks which are in motion, such as those in airplanes and trains. The application of networks in motion will be illustrated for both terrestrial and space environment along with security issues related to mobility management schemes.

Biography: Mohammed Atiquzzaman (Senior Member, IEEE) obtained his M.S. and Ph.D. in Electrical Engineering and Electronics from the University of Manchester (UK) in 1984 and 1987, respectively. He currently holds the Edith J Kinney Gaylord Presidential professorship in the School of Computer Science at the University of Oklahoma.

Dr. Atiquzzaman is the Editor-in-Chief of Journal of Networks and Computer Applications, the founding Editor-in-Chief of Vehicular Communications, and serves/served on the editorial boards of many journals including IEEE Communications Magazine, Real Time Imaging Journal, International Journal of Communication Networks and Distributed Systems and Journal of Sensor Networks and International Journal of Communication Systems. He co-chaired the IEEE High Performance Switching and Routing Symposium (2003, 2011), IEEE Globecom and ICC (2014, 2012, 2010, 2009, 2007, 2006), IEEE VTC (2013) and the SPIE Quality of Service over Next Generation Data Networks conferences (2001, 2002, 2003). He was the panels co-chair of INFOCOM'05, and is/has been in the program committee of many conferences such as INFOCOM, Globecom, ICCCN, ICCIT, Local Computer Networks, and serves on the review panels at the National Science Foundation. He is the current Chair of IEEE Communication Society Technical Committee on Communications Switching and Routing.

Dr. Atiquzzaman received IEEE Communication Society's Fred W. Ellersick Prize, and NASA Group Achievement Award for "outstanding work to further NASA Glenn Research Center's effort in the area of Advanced Communications/Air Traffic Management's Fiber Optic Signal Distribution for Aeronautical Communications" project. He is the co-author of the book "Performance of TCP/IP over ATM networks" and has over 270 refereed publications, available at www.cs.ou.edu/~atiq.

His current research interests are in areas of transport protocols, wireless and mobile networks, ad hoc networks, satellite networks, power-aware networking, and optical communications. His research has been funded by National Science Foundation (NSF), National Aeronautics and Space Administration (NASA), and U.S. Air Force, Cisco and Honeywell.

Nov 8 (Day 3) 08:40-09:30 Keynote Speaker III

Enhancing Scientific Data Management for Exascale

Professor Scott Klasky
Oak Ridge National Lab, University of Tennessee, USA
https://www.eecs.utk.edu/people/faculty/klasky/

Abstract: As we continue toward exascale, scientific data volume is continuing to scale and becoming more burdensome to manage. In this talk, we lay out opportunities to enhance state of the art data management techniques. We emphasize well principled data compression, and using it to achieve progressive refinement. This can both accelerate I/O and afford the user increased flexibility when she interacts with the data. The formulation naturally maps onto enabling partitioning of the progressively improving-quality representations of a data quantity into different media-type destinations, to keep the highest priority information as close as possible to the computation, and take advantage of deepening memory/storage hierarchies in ways not previously possible. Careful monitoring is requisite to our vision, not only to verify that compression has not eliminated salient features in the data, but also to better understand the performance of massively parallel scientific applications. Increased mathematical rigor would be ideal, to help bring compression on a better-understood theoretical footing, closer to the relevant scientific theory, more aware of constraints imposed by the science, and more tightly error-controlled. Throughout, we highlight pathfinding research we have begun exploring these related topics, and comment toward future work that will be needed.

Biography: Scott A. Klasky is a distinguished scientist and the group leader for Scientific Data in the Computer Science and Mathematics Division at the Oak Ridge National Laboratory. He holds an appointment at the University of Tennessee, and Georgia Tech University. He obtained his Ph.D. in Physics from the University of Texas at Austin (1994). Dr. Klasky is a world expert in scientific computing and scientific data management, co-authoring over 200 papers, and leading several key projects in the department of energy.

Nov 8 (Day 3) 09:30-10:10 Keynote Speaker IV

## Smart Health: Medical Data Mining and Innovative Applications in Patient Monitoring and Aging care

Professor Yanchun Zhang
Victoria University, Australia
https://www.vu.edu.au/contact-us/yanchun-zhang

Abstract: Due to the recent development or maturation of database, data storage, data capturing, and sensor technologies, huge medical and health data have been generated at hospitals and health organizations at unprecedented speed. Those data are a very valuable resource for improving health delivery, health care and decision making and better risk analysis and diagnosis. Health care and medical service is now becoming more data-intensive and evidence-based since electronic health records are used to track individuals' and communities' health information (particularly changes). These substantially motivate and advance the emergence and the progress of data-centric health data and knowledge management research and practice. In this talk, we will introduce innovative data mining techniques through case studies to address the challenges encountered in e-health and medical big data. This includes techniques and development on medical data streams processing, correlation analysis, abnormally detection and risk predictions with patient monitoring and aging care applications.

Biography: Yanchun Zhang is a full Professor and Director of Centre for Applied Informatics at Victoria University since 2004. Dr Zhang obtained a PhD degree in Computer Science from The University of Queensland in 1991. His research interests include databases, data mining, web services and e-health. He has published over 300 research papers in international journals and conference proceedings including ACM Transactions on Computer and Human Interaction (TOCHI), IEEE Transactions on Knowledge and Data Engineering (TKDE), SIGMOD and ICDE conferences, and a dozen of books and journal special issues in the related areas. Dr. Zhang is a founding editor and editor-in-chief of World Wide Web Journal (Springer) and Health Information Science and Systems Journal (Springer), and also the founding editor of Web Information Systems Engineering Book Series and Health Information Science Book Series. He is Chairman of International Web information Systems Engineering Society (WISE). He was a member of Australian Research Council's College of Experts (2008-2010), and also serves as expert panel member at various international funding agencies such as the Royal Society of New Zealand Marsden Fund and National Natural Science Fund of China (NSFC).
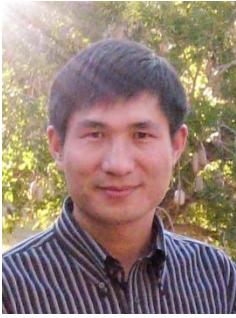
Nov 9 (Day 4) 08:50-09:40 Keynote Speaker V

Embracing Computational Social Science: In the Name of Data

Professor Feng Xia
The Alpha Lab, Dalian University of Technology, China
http://fengxia.net/

Abstract: We are living in a data-rich world. The increasing prevalence of information and communication technologies has produced unprecedented volumes of data on every aspect of our daily activities. These data footprints represent traces of various kinds of human behaviors, which open up exciting new opportunities to work towards better understanding of the society at different levels. Such opportunities have led to the emergence of computational social science, which is by nature an interdisciplinary field that lies at the intersection of computer science, social and behavioral sciences, network science, data science, and physics. Leveraging capabilities to collect and analyze data with an unprecedented breadth, depth, and scale, data-driven computational social science is transforming the way how we analyze, understand, and address a lot of major societal problems. For instance, the analysis of big data sets generated by and on behalf of human beings can provide new insights into real-world phenomena like human relationships, interactions and mobility. This talk will give an overview of data-driven computational social science, while discussing relevant opportunities and challenges. Special attention will be given to the understanding of human behaviors by means of big data analysis and mining. Some recent advancements in this field will be introduced.

Biography: Dr. Feng Xia is currently a Professor in School of Software, Dalian University of Technology, China. He is founding Director of The Alpha Lab (http://thealphalab.org/), Head of Department of Cyber Engineering, and Assistant Dean of School of Software. He is/was on the Editorial Boards of over 10 int'l journals. He has served as the General Chair, PC Chair, Workshop Chair, or Publicity Chair of over 30 int'l conferences, and PC Member of over 50 conferences. He is also the Guest Editor of over 10 journal special issues. Dr. Xia has authored/co-authored two books (research monographs published by Springer), over 240 scientific papers in int'l journals and conferences (such as IEEE TC, TMC, TBD, TCSS, TPDS, TETC, THMS, TVT, TII, TIE, IEEE/ACM TON, ACM TOMM, WWW, JCDL, MobiCom, and INFOCOM) and 3 book chapters, and has edited 3 int'l conference proceedings and 5 books (in Chinese). His name has been included on Elsevier's Most Cited Chinese Researchers for three consecutive years (2014-2016). Dr. Xia received a number of awards, including e.g. WWW 2017 Best Demo Award and IEEE UIC 2013 Best Paper Award. He is a Senior Member of IEEE and ACM, and a Member of AAAS.

Nov 9 (Day 4) 09:40-10:20 Keynote Speaker VI

On the Integration of Wireless Sensor Networks, Cloud Computing and the Internet of Things

Professor Flavia C. Delicato
Federal University of Rio de Janeiro, Brazil
https://www.researchgate.net/profile/Flavia_Delicato

Abstract: Wireless sensor networks (WSN) have evolved from their original approach as application-specific networks whose design was oriented for the sole purpose of being energy efficient, to become complex ecosystems integrating multiple applications and heterogeneous devices. Recently, in the wake of the new technologies that enabled the wide spread of the Internet of Things, we have seen a new computational paradigm known as Cloud of Sensors (CoS) emerging from the combination of cloud computing with Wireless Sensor Networks. In such a paradigm, there is a decoupling of the physical devices and the services provided by them, which are offered by following the on-demand model typical of the computational clouds. Multiple IoT and WSN devices can interoperate by providing value-added services to one or multiple applications simultaneously and transparently to end users. The cloud environment is in charge of virtualizing physical devices and provide users with sensing as a service, thereby extending the service model of traditional clouds. There are several challenges involved in implementing this new paradigm, ranging from the proposal of new light virtualization models, implemented at the edge of the network, through the management of physical and virtual resources, the development of applications at the top of such infrastructures, to the designing of new business models to take advantage of available services. In this talk, we will introduce the CoS paradigm and discuss the main challenges of this emerging research area.

Biography: Professor Flávia C. Delicato received her PhD in Electrical Engineering from Federal University of Rio de Janeiro (UFRJ) in 2005 and her Doctoral Thesis was selected as one of the six best of the year by the Brazilian Computer Society. She is an Associate Professor of the Department of Computer Science at UFRJ where she teaches for undergraduate and post-graduate courses, and integrates the Distributed Systems Research Group. From 2007 to 2008 she was Executive Director of the National Laboratory of Networks and Distributed Systems (LARC). In 2010 and 2016 she was at the University of Sydney as a visiting researcher. She has been leading and participating in several research projects with funding from International and Brazilian government agencies. Her primary research interests are middleware for wireless sensor networks, Internet of Things, adaptive systems and ubiquitous computing. She is a Level 1 Researcher Fellow of CNPq and a Research Fellow of FAPERJ. She has published 2 Books, and over 160 refereed international conference, journal papers and Book Chapters. She has worked as a reviewer of several international journals and in program committees of several Brazilian and International conferences. She is currently a member of the Editorial Boards of Ad Hoc Networks and Scalable Computing and Communications Journals.

Nov 9 (Day 4) 10:40-11:20 Keynote Speaker VII

Data-Driven Knowledge Discovery and Intelligence for Future Internet

Professor Geyong Min
University of Exeter, UK
https://people.exeter.ac.uk/gm321/

Abstract: Research and development of Next-Generation Internet (NGI) have become a global endeavour. With an overwhelming amount of data pouring into the Internet, network domains are embracing an unprecedented wave of traffic flows and are stepping into the era of network big data. Network big data has been widely considered as a double-edged sword of NGI. On one hand, transmission of high-volume and high-speed big data pose grand challenges. On the other hand, the knowledge discovered from content-rich big data can be used to improve the design and operation of NGI.

In this talk, we will present state-of-the-art network architecture for next-generation high-performance Internet coupled with the emerging technologies, such as Software-Defined Networking (SDN) and Network Function Virtualization (NFV) that have attracted significant attention in the networking and telecommunication community. To achieve high performance and high availability of NGI, our vision is to conduct efficient data analysis in order to dig valuable insights and knowledge hidden in network big data for improving the design, operation, and management of NGI. We will present the innovative big data processing technologies, real-time incremental data analysis tools, and cost-effective distributed platform we have recently developed to support better decision-making for network design, anomaly detection, fault localization, resource management and optimization. This talk offers the theoretical underpinning for efficient processing of big data, and also opens up a new horizon of research and development by exploiting the key intelligence and insights hidden in rich network big data for the design and improvement of NGI.

Biography: Professor Geyong Min is a Chair in High Performance Computing and Networking and the academic lead of Computer Science in the College of Engineering, Mathematics and Physical Sciences at the University of Exeter, UK. His recent research has been supported by European FP6/FP7, UK EPSRC, Royal Academy of Engineering, Royal Society, and industrial partners including Motorola, IBM, Huawei Technologies, INMARSAT, and InforSense Ltd. Prof. Min is the Co-ordinator of two recently funded FP7 projects: 1) Quality-of-Experience Improvement for Mobile Multimedia across Heterogeneous Wireless Networks; and 2) Cross-Layer Investigation and Integration of Computing and Networking Aspects of Mobile Social Networks. As a key team member and participant, he has made significant contributions to several EU funded research projects on Future Generation Internet. He has published more than 200 research papers in leading international journals including IEEE/ACM Transactions on Networking, IEEE Journal on Selected Areas in Communications, IEEE Transactions on Communications, IEEE Transactions on Wireless Communications, IEEE Transactions on Multimedia, IEEE Transactions on Computers, IEEE Transactions on Parallel and Distributed Systems, and at reputable international conferences, such as SIGCOMM-IMC, ICDCS, IPDPS, GLOBECOM, and ICC. He is an Associated Editor of several international journals, e.g., IEEE Transactions on Computers. He served as the General Chair/Program Chair of a number of international conferences in the area of Information and Communications Technologies.

Nov 9 (Day 4) 11:20-12:00 Keynote Speaker VIII

Multi-scaling the Cloud for the Internet of Things

Professor Rich Wolski
University of California, Santa Barbara, USA
https://www.cs.ucsb.edu/~rich/

Abstract: The Internet of Things (IoT) promises as many societal benefits as it poses in terms of technological challenges. It conjures a vision of the future in which the ability to use digital technology ubiquitously to enhance human interaction with the physical world constitutes a landmark in human development. However realizing this vision requires a new and unprecedented digital infrastructure to support a fully interconnected and computationally enhanced reality.

In this talk, we will explore the role that cloud computing is playing to accelerate the utility of internetworked "things." We will also outline key technology challenges that currently pose impediments to progress. In particular, we will discuss the notion of cloud multi-scale -- the need for technologies to be able to operate at multiple physical scales -- as well as research efforts that attempt to illuminate promising approaches to solving some of the immediately addressable challenges.

Biography: Dr. Rich Wolski is a Professor of Computer Science at the University of California, Santa Barbara (UCSB) and co-founder of Eucalyptus Systems Inc. Having received his M.S. and Ph.D. degrees from the University of California at Davis (while a research scientist at Lawrence Livermore National Laboratory) he has also held positions at the University of California, San Diego, and the University of Tennessee, the the San Diego Supercomputer Center and Lawrence Berkeley National Laboratory. Rich has led several national scale research efforts in the area of distributed systems and is the progenitor of the Eucalyptus open source cloud project.

The IEEE 2017 CyberSciTech/DASC/PICom/DataCom Join Panel on

Prospect Cybermatics in 2025: From Cyber-X to Cyber Sciences

The term Cybermatics has come to denote a holistic field for the systematic study of cyber entities in cyberspaces and cyber worlds, and their properties, functions, and conjugations with entities in conventional spaces/worlds. Following the computerization and informatization, Cyberization has been taking place in the ubiquitous computing era. Cyber entities and Cyber-enabled worlds are forming and expanding into many fields named Cyber-X such as Cyber-Physical, Cyber-Social, Cyber-Mental, etc. domains. Cyber science is highly in demand in response to an ever-increasing diversity of synthesized Cyber entities and connected Cyber-enabled worlds. Such a suite of Cyber sciences including theories/technologies/engineering can be envisioned as an essential future discipline. This panel is to prospect Cybermatics in 2025 and discusses layout a roadmap guiding us from Cyber-X to Cyber sciences. Here is a non-exclusive list of issues to be discussed:

(1) How well established will the basic Cybermatics or Cyber Science be in 2025?

(2) What will the body of knowledge within Cybermatics be? How can the BoK be constructed incrementally?

(3) How will new technologies, such as AI, IoT, BigData, Cloud, Smart-X etc., influence Cybermatics?

(4) What will be the challenges and opportunities that come from the viewpoint of Cybermatics?

(5) How many Cyber-X that will be identified as branches or sub-fields of Cybermatics or Cyber Science?

Moderators

Zhong Chen, Peking University, China
Runhe Huang, Hosei University, Japan

Panelists

Stephen S. Yau, Arizona State University, USA
Frank Hsu, Fordham University, USA
Yi Pan, Georgia State University, USA
Paulo Pires, Federal University of Rio de Janeiro, Brazil
Yanchun Zhang, Victoria University, Australia
Klimis Ntalianis, Athens University of Applied Sciences, Greece

Day 2   **Tuesday, 7th November 2017**   **Room: Gallery**

11:00-12:00 CyberSciTech/PICom/DataCom Poster Session

Chairs: Flávia C. Delicato, Federal University of Rio de Janeiro, Brazil

      Kevin I-Kai Wang, The University of Auckland, New Zealand

      Xiaolin Andy Li, University of Florida, USA

1. **Development of a Platform-Independent Software Tool for Management of X.509 Certificates from Diverse Certificate Stores**, Thomas Fiedl, Henning Schneider, and Miloslava Plachkinova

2. **Plausible Deniability for ISP Log and Browser Suggestion Obfuscation with a Phrase Extractor on Potentially Open Text**, Ronald Loui

3. **Information Warfare Amplified by Cyberwarfare and Hacking the National Knowledge Infrastructure**, Ronald Loui

4. **Enabling High-Resolution Video Support for the Next-Generation Internet-Connected Display**, Yu-Pei Liang, Shuo-Han Chen, Yi-Han Lien, Tseng-Yi Chen, Heng-Yin Chen, and Wei-Kuan Shih

5. **Curation of Physical Objects in Botany: Architecture and Development of a Linked Open Data-Based Application,** Marcela Mayumi Mauricio Yagui, Luís Fernando Monsores Passos Maia, Jonice Oliveira, and Adriana Vivacqua

6. **A Deep Convolutional Network Demodulator for Mixed Signals with Different Modulation Types**, Xuming Lin, Ruifang Liu, Wenmei Hu, and Yameng Li

7. **Threat Evaluation of Aerial Targets in an Air Defense System Using Bayesian Networks**, José Fernando Basso Brancalion, and Karl H. Kienitz

8. **A Big Aurora Data Management Framework Toward Aurora Classification**, Yuhang Wang, Hui Zhao, Xian Zhang, and Jimin Liang

9. **Towards the Design of a System and a Workflow Model for Medical Big Data Processing in the Hybrid Cloud**, Yong-Hyun Kim and Eui-Nam Huh

10. **Mining the Statistical Information of Confidential Data from Noise-Multiplied Data**, Yan-Xia Lin

11. **Orientation in Conceptual Modeling Frameworks**, Sabah Al-Fedaghi and Haya Alahmad

12. **BLE Tree Networks for Sensor Devices in Internet of Things**, Sheng-De Wang and Kuan-Jung Chiang

13. **A Parallel Majority Learning Algorithm for Anomaly Detection**, Shin-Ying Huang, Ya-Yun Peng, and Fang Yu

14. **Automate of the Fact-checking: State of Art, Obstacles and Perspectives**, Edouard Ngor Sarr and Ousmane Sall

15. **Deep Convolutional Neural Network for Facial Expression Recognition using Facial Parts**, Lucy Nwosu, Jiang Lu, and Hui Wang

13:00-15:20 DataCom Session 1: Deep Learning and Large Scale Systems

Chair: Feng Xia, Dalian University of Technology, China

1. **Mixture Self-Paced Learning for Multi-View K-Means Clustering**, Hong Yu, Yahong Lian, Xiujuan Xu, and Xiaowei Zhao

2. **Combining Weather Condition Data to Predict Traffic Flow: A GRU Based Deep Learning Approach**, Da Zhang and Mansur R. Kabuba

3. **An Online-Offline Combined Big Data Mining Platform**, Hao Lv, Weishan Zhang, Liang Xu, Xi Liu, Qinghua Lu, and Yan Liu

4. **Attribute-Based Partner Switching Boosts Cooperation in Social P2P Systems**, Linlin Tian, Mingchu Li, Hong Yu, and Xing Jin

5. **A Modified Node2vec Method for Disappearing Link Prediction**, Lu Li, Wei Wang, Shuo Yu, Liangtian Wan, Zhenzhen Xu, and Xiangjie Kong

6. **DeepCancer: Detecting Cancer via Deep Generative Learning through Gene Expressions**, Rajendra Bhat, Vivek Viswanath, and Xiaolin Li

7. **Using Deep Learning to Predict and Optimize Hadoop Data Analytic Service in a Cloud Platform**, Chen-Chun Chen, Yu-Tung Hasio, Jerry Chou, and Chan-Yi Lin

15:40-18:00 DataCom Session 2: Big Data Science, Theorems and Analytics I

Chair: Danilo Gligoroski, Norwegian University of Science & Technology, Norway

1. **Understanding Travel Behavior of Private Cars via Trajectory Big Data Analysis in Urban Environments**, Dong Wang, Qian Liu, Zhu Xiao, Jie Chen, Yourong Huang, and Weiwei Chen

2. **Team Recognition in Big Scholarly Data: Exploring Collaboration Intensity**, Shuo Yu, Feng Xia, Kaiyuan Zhang, Zhaolong Ning, Jiaofei Zhong, and Chengfei Liu

3. **Perldoop2: A Big Data-Oriented Source-to-Source Perl-Java Compiler**, César Piñeiro, José M. Abuín, and Juan C. Pichel

4. **Analysis of Projected 2024 Employment Based on Current Computer Science Graduates in U.S**, Dejang Liu

5. **Availability Modeling and Assurance of Map-Reduce Computing**, Zuqiang Ke and Nohpill Park

6. **A Data-Driven Resource Allocation Method for Personalized Container Based Desktop as a Service**, Hyeon-Ji Baek and Eui-Nam Huh

13:00-15:20 CyberSciTech Session 1: Cyber Human Science and Computing

Chair: Kevin I-Kai Wang, The University of Auckland, New Zealand

1. **Respiratory Sounds Feature Learning with Deep Convolutional Neural Networks**, Yongpeng Liu, Yusong Lin, Zongmin Wang, Guanling Chen, Shan Gao, Hongpo Zhang, and Yang Gao

2. **Incentivization for Health Crowdsensing**, Robert Steele

3. **Deep Convolution Neural Network Discriminator for Distinguishing Seborrheic Keratosis and Flat Warts**, Kehua Guo, Ting Li, Runhe Huang, and Jian Kang

4. **An Integrative and Precise Approach in Personality Computing Based on Ontic Personae Modeling**, Ao Guo and Jianhua Ma

5. **Identifying Image Tags from Instagram Hashtags Using the HITS Algorithm**, Stamatios Giannoulakis, Nicolas Tsapatsoulis, and Klimis Ntalianis

6. **MMHG: Multi-Modal Hypergraph Learning for Overall Survival After D2 Gastrectomy for Gastric Cancer**, Zhikui Chen, Fei Lu, Xu Yuan, Qiu Li, Zedong Du, Li Luo, and Fengyi Zhang

15:40-18:00 CyberSciTech Session 2: Cyber Physical Computing and Systems I

Chair: Wenbing Zhao, Cleveland State University, USA

1. **A Learning-Based Framework for Two-Dimensional Vehicle Maneuver Prediction over V2V Networks**, Hossein Nourkhiz Mahjoub, Amin Tahmasbi-Sarvestani, Hadi Kazemi, and Yaser P. Fallah

2. **Analysis of the Impact of Driver Behavior Models on Performance of Forward Collision Warning Systems**, Ahmad Jamialahmadi and Yaser P. Fallah

3. **A Bus Arrival Time Prediction Method Based on GPS Position and Real-time Traffic Flow**, Jianmei Lei, Dongmei Chen, Fengxi Li, Qingwen Han, Siru Chen, Lingqiu Zeng, and Min Chen

4. **Data-Based Analysis of Sampling and Estimation Methods for Vehicle Tracking over Wireless Networks**, Masoumeh Kalantari-Khandani, Wasfy Mikhael, Yaser P. Fallah, and Katerina Goseva-Popstojanova

5. **Application of Adaptive Genetic Algorithm for Multimodal Transportation Logistics Distribution Routing Problem**, Zhe Sun, Zhixin Sun, Xuejian Zhao, Long Jin, and Wei Zhang

6. **A Comparison of Hash-Based Methods for Trajectory Clustering**, Maede Rayatidamavandi, Yu Zhuang, and Mahshid Rahnamay Naeini

13:00-15:20 DASC Session 1: Secure Computing I

Chair: Md Zakirul Alam Bhuiyan, Fordham University, USA

1. **Preserving Data Integrity in IoT Networks under Opportunistic Data Manipulation**, Shameek Bhattacharjee, Mehrdad Salimitari, Mainak Chatterjee, Kevin Kwiat, and Charles A. Kamhoua

2. **Colluded Applications Vulnerabilities in Android Devices**, Igor Khokhlov and Leon Reznik

3. **On Sustaining Prolonged Interaction with Attackers**, Roberto Vergaray and Julian Rrushi

4. **Defending Electrical Substations against 0-day Malware through Decoy I/O in Protective Relays**, Julian Rrushi

5. **Discovering Hidden Correlations on Tor**, Gianluigi Me and Liberato Pesticcio

6. **Wireless Spoofing-Attack Prevention Using Radio-Propagation Characteristics,** Mihiro Sonoyama, Takatsugu Ono, Osamu Muta, Haruichi Kanaya, and Koji Inoue

7. **Genetic Algorithm-Based Intrusion Detection System for Web Services,** Hossain Shahriar and William Bond

15:40-18:00 DASC Session 2: Secure Computing II

Chair: Nobuyasu Kanekawa, Hitachi, Ltd., Japan

1. **Spatial-Temporal Anomaly Detection Using Security Visual Analytics via Entropy Graph and Eigen Matrix**, Matthew Sinda and Qi Liao

2. **Towards a Storage-Efficient and Categorized Secure Log Structure Scheme for Embedded Systems,** Sérgio Câmara, Luci Pirmez, and Luiz Fernando Costa Carmo

3. **Software Security Testing via Misuse Case Modeling**, Samer Khamaiseh and Dianxiang Xu

4. **Target Discovery Differentials for 0-Knowledge Detection of ICS Malware,** Samer Khamaiseh and Dianxiang Xu

5. **PhishBox: An Approach for Phishing Validation and Detection**, Jhen-Hao Li and Sheng-De Wang

6. **Bot Classification for Real-Life Highly Class-Imbalanced Dataset**, Sarah Harun, Tanveer Hossain Bhuiyan, Song Zhang, Hugh Medal, and Linkan Bian

7. **Holographic Memory Calculation FPGA Accelerator for Optically Reconfigurable Gate Array**, Minoru Watanabe

8. **A Hierarchic Secure Cloud Storage Scheme Based on Fog Computing**, Jiyuan Zhou, Tian Wang, Md Zakirul Alam Bhuiyan, and Anfeng Liu

Day 2   Tuesday, 7th November 2017   Room: Como

13:00-15:20 PICom Session 1: IoT, Cloud and Mobile Computing

Chair: Claudio Miceli, Federal University of Rio de Janeiro, Brazil

1. **A Dimension Reduction Model and Classifier for Anomaly-based Intrusion Detection in Internet of Things,** Shengchu Zhao, Wei Li, Tanveer A. Zia, Charles Sturt, and Albert Zomaya

2. **A Multiscale Approach for a Distributed Event-Based Internet of Things,** Denis Conan, Léon Lim, Chantal Taconet, Sophie Chabridon, and Claire Lecocq

3. **Quantifying Cloud Elasticity on Pervasive Devices with Container-Based Auto-Scaling,** Xuxin Tang, Fan Zhang, Xiu Li, Zhijiang Li, and Samee U. Khan

4. **Real-Time Incident Clearance Time Prediction Using Traffic Data from Internet of Mobility Sensors,** Hamzah Al-Najada and Imad Mahgoub

5. **VANET Adaptive Beaconing Based on Fuzzy Logic,** Mohammed Alhameed and Imad Mahgoub

6. **Investigating the Impact of Adaptive Beaconing on GEOADV Performance,** Joanne Skiles and Imad Mahgoub

15:40-18:00 PICom Session 2: Services for Pervasive Computing

Chair: Wei Li, University of Sydney, Australia

1. **Self-Adaptive Energy-Efficient Applications: The HADAS Developing Approach**, Nadia Gamez, José-Miguel Horcas, Monica Pinto, and Lidia Fuentes

2. **A Weighted MHOF and Sparse Representation Based Crowd Anomaly Detection Algorithm,** Yujie Chen and Suyu Wang

3. **Optimizing MapReduce Partitioner Using Naive Bayes Classifier**, Lei Chen, Wei Lu, Liqiang Wang, Ergude Bao, Weiwei Xing, and Yong Yang

4. **Intelligent Subevent Detection Based on Social Network Data**, Diogo Nolasco and Jonice Oliveira

5. **EVINCED: Integrity Verification Scheme for Embedded Systems Based on Time and Clock Cycles**, Cristiano Castro, Sérgio Câmara, Davidson Rodrigo Boccardo, and Luiz Fernando Costa Carmo

6. **Achieving Green Security in Pervasive Computing Using the HADAS Toolkit**, Daniel-Jesus Munoz Guerra, Jose Antonio Montenegro Montes, Monica Pinto, and Lidia Fuentes

13:00-15:20 DataCom Session 3: Big Data Science, Theorems and Analytics II

Chair: Praveen Madiraju, Marquette University, USA

1. **Repair Duality with Locally Repairable and Locally Regenerating Codes**, Danilo Gligoroski, Katina Kralevska, Rune E. Jensen, and Per Simonsen

2. **Efficient Parallel K-Means on MapReduce Using Triangle Inequality**, Sami Al. Ghamdi and Giuseppe Di Fatta

3. **Facilitating Reproducible Computing via Scientific Workflows for Modelling and Data Integration**, Yuan Cao and Yao Liang

4. **A High-dimensional Outlier Detection Algorithm Base on Relevant Subspace,** Zhipeng Gao, Yang Zhao, Kun Niu, and Yidan Fan

5. **Discriminatively Local Hashing for Preserving Semantic Manifold**, Xiaopeng Zhang, Hui Zhang, Rui Liu, Yong Chen, and Zhiwen Ye

6. **Integrated Discovery of Location Prediction Rules in Mobile Environment**, Elahe Elahe Naserian, Xinheng Wang, Xiaolong Xu, Yuning Dong, Nektarios Georgalas, and Kaizhu Huang

7. **Inferring Workflows with Job Dependencies from Distributed Processing Systems Logs**, Cristina Abad and Gladys Carrillo

15:40-18:00 DataCom Session 4: Big Data Analysis and Complex Applications I

Chair: Cristina L. Abad, ESPOL University in Guayaquil, Ecuador

1. **Forecasting Stock Prices Using Social Media Analysis**, Scott Coyne, Praveen Madiraju, and Joseph Coelho

2. **Automatically Finding Matches Between Social Media Posts and News Articles**, Filipe Miranda and Álvaro Figueira

3. **Real-Time Event Search Corresponding to Place and Time Using Social Stream**, Ruriko Kudo, Miki Enoki, Akihiro Nakao, Shu Yamamoto, Saneyasu Yamaguchi, and Masato Oguchi

4. **Contextual Polarity and Influence Mining in Online Social Networks**, Hassan Alzahrani, Philippe Duverger, and Nam Nguyen

5. **Scalable Mining and Analysis of Protein-Protein Interaction Networks**, Shaikh Arifuzzaman and Bikesh Pandey

6. **A Time-Delayed Information-Theoretic Approach to the Reverse Engineering of Gene Regulatory Networks Using Apache Spark**, Yasser Abduallah, Jason T. L. Wang, and Tao Yu

13:00-15:20 CyberSciTech Session 3: Cyber Physical Computing and Systems II

Chair: Xiaokang Zhou, Shiga University, Japan

1. **Feature-Based Temporal Statistical Modeling of Data Streams from Multiple Wearable Devices**, Tongtong Xu, Ao Guo, Jianhua Ma, and Kevin I-Kai Wang

2. **Locality-Driven Dynamic Flash Cache Allocation**, Liang Xu, Qianbin Xia, and Weijun Xiao

3. **A Memory Capacity-Aware Algorithm for Fast Clustering of Disk-Resident Big Datasets**, Ahmad O. Aseeri, Yu Zhuang, and Mohammed Alkatheiri

4. **Caching Scheme with Edge Nodes for Mobile Cyber Physical Systems**, Qichao Xu, Zhou Su, Yilong Hui, and Qing Yang

5. **Anomaly Detection Technology for Streaming Data of Wearable Medical Devices**, Peipei Wang, Yutong Han, Jing Qin, Bin Wang, Xiaochun Yang

6. **A Real Example of the Batdam Stone in Jong Nang and Tomb Gate of Jeju Island Its Applications to Cyber Physical Human Science IoT**, Moon Ho Lee

15:40-18:00 CyberSciTech Session 4: Cyber Science and Fundamentals

Chair: Yaser P. Fallah, University of Central Florida, USA

1. **Semantic Neuron Networks Based Associative Memory Model**, Peter Mungai, Runhe Huang, Zhong Chen, and Xiaokang Zhou

2. **Pairwise Preference over Mixed-Type Item-Sets Based Bayesian Personalized Ranking for Collaborative Filtering**, Shan Gao, Guibing Guo, Yusong Lin, Xingjin Zhang, Yongpeng Liu, and Zongmin Wang

3. **On Extraction of Rules from Deep Learner: the Deeper, the Better?**, Tomoya Furukawa and Qiangfu Zhao

4. **Learning to Diversify Recommendations Based on Matrix Factorization**, Shuang Li, Yuezhi Zhou, Di Zhang, Yaoxue Zhang, and Xiang Lan

5. **A Survey of Semantics-Aware Performance Optimization for Data-Intensive Computing**, Liqiang Wang and Bingbing Rao

6. **A Smart Visual Analysis Solution for MOOC Data**, Xiu Li, Chang Men, Fan Zhang, and Zhihui Du

7. **Research Hotspots and Trends in Cyberspace: From 1989 to 2016**, Zili Li, Li Zeng, and Zhigang Luo

13:00-15:20 DASC Session 3: Autonomic Computing

Chair: Zhong Chen, Beijing University, China

1. **Energy-Efficient Computation Automatic Offloading in Mobile Edge Computing,** Changqing Luo, Sergio Salinas, Ming Li, and Pan Li

2. **Asynchronous Agent Teams for Collaborative Tasks Based on Bottom-Up Alliance Formation and Adaptive Behavioral Strategies,** Masahi Hayano, Naoki Iijima, and Toshiharu Sugawara

3. **Graphical Animations of State Machines,** Tam Nguyen and Kazuhiro Ogata,

4. **Revisiting Shamir's No-key Protocol: Lightweight Key Transport**, Adnan Kılıç, Ertan Onur, and Cansu Betin Onur

5. **Deadlock Detection in the Scheduling of Last-Mile Transportation Using Model Checking**, Koji Hasebe, Mitsuaki Tsuji, and Kazuhiko Kato

6. **A Comparative Study of Algorithm for Computing Strongly Connected Components**, Frank Hsu, Xiaojie Lan, Gabriel Miller, and David Baird

15:40-18:00 DASC Session 4: Dependable Computing

Chair: Geyong Min, University of Exeter, UK

1. **Fault-Tolerant Network-Server Architecture for Time-Critical Web Applications**, Kutalmis Akpinar, Fereshteh Jafariakinabad, Kien Hua, Omar Nakhila, Jun Ye, and Cliff Zou

2. **On Basis Variables for Efficient Error Detection**, Jake Fairbrother and Matthew Leeke

3. **SAFARI-Taxi: Secure, Autonomic, Fault-Resilient, and Intelligent Taxi Hailing System**, Mohammad A. Hoque, Phil Pfeiffer, Sanford Gabrielle, Edward Hall, and Elizabeth Turbyfill

4. **Validating the Correctness of Outsourced Computational Tasks Using Pseudorandom Number Generators**, Yaohang Li, Ravi Mukkamala, and Michael Mascagni

5. **Specifying Functional Requirements and QoS Parameters for IoT Systems**, Bruno Costa, Paulo F. Pires, and Flávia Coimbra Delicato

6. **Adaptive Zone Replication for Structured Peer-to-Peer Systems**, Shigeki Yoneda and Naohiro Hayashibara

Day 3   Wednesday, 8th November 2017   Room: Como

13:00-15:20 PICom Session 3: Pervasive Intelligence

Chair: Liqiang Wang, University of Central Florida, USA

1. **Deep Spectral-Spatial Feature Extraction Based on DCGAN for Hyperspectral Image Retrieval**, Lu Chen, Jing Zhang, Xi Liang, Jiafeng Li, and Zhuo Li

2. **Robust Radial Distortion Correction from a Single Image**, Le Li, Weibin Liu, and Weiwei Xing

3. **Image Enhancement Based on Spatial Multi-Scale Homomorphic Filtering and Local Entropy Guided Image Filtering**, Sisi Han, Weibin Liu, and Weiwei Xing

4. **A Novel Method for Human Motion Capture Data Segmentation**, Ziyi Wu, Weibin Liu, and Weiwei Xing

5. **A Multi-Sensor Data Fusion Technique for Multi-Application Wireless Sensor Networks Based on Overlapping Intervals**, Claudio M. Farias and Luci Pirmez

15:40-18:00 Special Session on Cyber-Enabled Smart Environment and Healthcare (Cyber-ESEH)

Chair: Wenbing Zhao, Cleveland State University, USA

1. **Center of Mass Estimation Using Motion Capture System**, Gabriel Ploof, Bassam Alqahtani, Farwan Alghamdi, Garret Flynn, and Cai Xia Yang

2. **Buddy: A Virtual Life Coaching System for Children and Adolescents with High Functioning Autism**, Xiongyi Liu and Wenbing Zhao

3. **Towards a Technology-Enabled Environment of Care for Nursing Homes**, Qing Wu and Wenbing Zhao

4. **A Survey on Smart Wearables in the Application of Fitness**, Hao Qiu, Xianping Wang, and Fei Xie

5. **Towards User-Centered Assistance in Smart Environments Based on Device Metadata**, Marius Khan, Sabine Sachweh, and Albert Zündorf

6. **AED: Adaptive Energy-efficient Data Transmission Scheme for Heart Disease Detection**, Lokesh Sharma, Albert Christian, and Shih-Lin Wu

7. **Improving Wake-Up-Word and General Speech Recognition Systems**, Veton Këpuska and Gamal Bohouta

13:00-15:20 DataCom Session 5: Big Data Analysis and Complex Applications II

Chair: Nevena Golubovic, University of California, Santa Barbara, USA

1. **Convolutional Filtering for Accurate Signal Timing from Noisy Streaming Data**, Jonathan Wang, Kesheng Wu, Alex Sim, and Seongwook Hwangbo

2. **On the Measurement and Analysis of Safety in Los Angeles**, Rami Ibrahim and Omair Shafiq

3. **Optimizing NBA Player Selection Strategies Based on Salary and Statistics Analysis**, Ramya Nagarajan and Lin Li

4. **Online Review Analysis by Visual Feature Selection**, Keerthika Koka and Shiaofen Fang

5. **Exploring Dynamic Granules for Time-Varying Big Data**, Zhengxin Chen

6. **A Scalable Fair Heterogeneous Resource Allocation Scheme in Distributed Systems**, Xiaoying Zheng and Ye Xia

7. **General Time-Dependent Sequenced Route Queries in Road Networks**, Mohammad Hossein Ahmadi and Vahid Haghighatdoost

15:40-18:00 DataCom Session 6: Big Data Infrastructure, Clouds and HPC I

Chair: Kesheng Wu, Lawrence Berkeley National Laboratory, USA

1. **A Dynamic Power Management Schema for Multi-Tier Data Centers**, Aryan Azimzadeh and Nasseh Tabrizi

2. **An Adaptive Initial Cluster Centers Selection Algorithm for High-dimensional Partition Clustering**, Zhipeng Gao, Yidan Fan, Kun Niu, and Ting Wang

3. **Super-Scalable Computation Framework for Automated Terrain Identification**, Yupeng Yan, Manu Sethi, Anand Rangarajan, and Sanjay Ranka

4. **CENTAURUS: A Cloud Service for K-Means Clustering**, Nevena Golubovic, Angad Gill, Chandra Krintz, and Rich Wolski

5. **Incremental Hybrid SDN Deployment for Enterprise Networks**, Ming-Hung Chen, Wei-Min Wang, I-Hsin Chung, and Cheng-Fu Chou

6. **DR-Update: A Dual-Level Relay Scheme in Erasure-Coded Storage Systems for Balanced Updates**, Mingzhu Deng, Songping Yu, Xiao Nong, Fang Liu, and Zhiguang Chen

08:50-10:20 Special Session on Cyber Social Computing and Cyber-Enabled Applications (Cyber-SC & Cyber-EA)

Chair: Weimin Li, Shanghai University, China

1. **Flexible Analysis of Cross-Organizational Process Modeling Based on π-Calculus**, Ninglin Xu, Jiulei Jiang and Xiaofeng Wang

2. **Formalization of Business Process with Flexibility Based on Service Interaction**, Yaya Liu, Lingyu Xu, Jiulei Jiang, and Lishuang Zhao

3. **CF-Cluster: Clustering Bike Station Based on Common Flows**, Liangxu Liu, Bo Guan, Dayao Gong, and Junyao Xiao

10:40-12:00 Special Session on Computing and Applications for Cyber Internet of Things (Cyber-IoT)

Chair: Qichao Xu, Shanghai University, China

1. **QoE Based Optimization for Cyber Vehicular Networks**, Hui Hui and Rui Xing

2. **Security Analysis of Simple Network Management Protocol Based IEEE P21451 Internet of Things**, Xinzheng Feng, Jun Wu, Kuan Wang, Jianhua Li, and Meng Wang

3. **Performance Comparison of Base Station On/Off and Base Station Cooperative Transmission in Ultra-Dense Network**, Junjie Pei, Zhuoxuan Ju, Hengdong Ye, Bibo Wu, and Shu Fu

4. **Joint Base Station Cooperative Transmission and ON-OFF Mechanism in Internet of Things Networks**, Zhuoxuan Ju, Hengdong Ye, Bibo Wu, and Shu Fu

5. **A View on Key Technology of Secure and Efficient Data Transmission for Active Distribution Networks**, Song Deng and Kun Wang

13:00-15:20 CyberSciTech Session 5: Cyber Communications and Security

Chair: Klimis Ntalianis, National Technical University of Athens, Greece

1. **Design Considerations for Cyber Security Testbeds: A Case Study on a Cyber Security Testbed for Education**, Maria Leitner, Maximilian Frank, and Timea Pahi

2. **Detecting Android Malware Based on Extreme Learning Machine**, Yuxia Sun, Yunlong Xie, Zhi Qiu, Yuchang Pan, Jian Weng, and Song Guo

3. **Co_Hijacking Monitor: Collaborative Detecting and Locating Mechanism for HTTP Spectral Hijacking**, Pan Wang and Xuejiao Chen

4. **A Study on Communication Network Reliability for Advanced Metering Infrastructure in Smart Grid**, Shengjie Xu, Yi Qian, and Rose Qingyang Hu

5. **Interference Management for Physical Layer Security in Heterogeneous Networks**, Dongfeng Fang, Yi Qian, and Rose Qingyang Hu

6. **Exploiting Mobile Sensing Data for Media Caching in Mobile Edge Networks**, Zi Wang, Zhiwei Zhao, Geyong Min, Zifei Zhao, and Xinyuan Huang

15:40-18:00 CyberSciTech Short Paper Session

Chair: Bob Apduhan, Kyushu Sangyo University, Japan

1. **An Ontology-Based Framework for Organization Information Extraction**, Tengku Adil Tengku Izhar and Bernady O. Apduhan

2. **Exploring the Production of "The Belt and Road"-Driven Animations with Crowdsourcing Model**, Wu Ting, Fei Hao, and Mijin Kim

3. **Re-Thinking Online Offenders' SKRAM: Individual Traits and Situational Motivations as Additional Risk Factors for Predicting Cyber Attacks**, David Maimon, Steve Hinton, Olga Babko-Malaya, and Rebecca Cathey

4. **Holographic Real Time 3D Heart Visualization from Coronary Tomography for Multi-place Medical Diagnostics**, Arthur Bucioli, Gerson Flavio Lima, Edgard Lamounier, Alexandre Cardoso, Isabela Peres, Gabriel Cyrino, Milton Neto, and Roberto Botelho

5. **A Practical Cyber-Physical System for the Self-Capture of the Effect of Exercise on Blood Glucose Levels**, Robert Steele

6. **Exploring Authentication and Access Control for an IoT Green Roof Monitoring System**, Feng Ye, Yujun Sun, and Andrew J. Rettig

7. **Use of Switching Controllers for Mitigation of Active Identification Attacks in Networked Control Systems**, Alan Sá, Luiz Fernando Costa Carmo, and Raphael Machado

08:50-10:20 DASC Session 5: Real-time Systems

Chair: Frank Hsu, Fordham University, USA

1. **A 3D-Collaborative Wireless Network: Towards Resilient Communication for Rescuing Flood Victims**, Md Arafatur Rahman, Munirul Hasan, A. Taufiq Asyhari, and Md Zakirul Alam Bhuiyan

2. **Systematic Test Generation for Secure Hardware Supported Virtualization**, Senwen Kan and Jennifer Dworak

3. **Approximate Power Grid Protection Against False Data Injection Attacks,** Kelvin Ly, Kevin Kwiat, Charles A. Kamhoua, Laurent Njilla, and Yier Jin

4. **Securing Real-Time Cyber-Physical Systems Using WCET-Aware Artificial Diversity**, Joachim Fellmuth, Tobias Pfeffer, Paula Herber, and Sabine Glesner

10:40-12:00 DASC Short Paper Session 1: Dependable Computing

Chair: Paulo Pires, Federal University of Rio de Janeiro, Brazil

1. **Classification of Hierarchical Fault-Tolerant Design Patterns**, Kai Ding, Andrey Morozov, and Klaus Janschek

2. **Temporal Variation of Trust in Dependable Systems**, Sudip Chakraborty

3. **Modular Norm Models: A Lightweight Approach for Modeling and Reasoning about Legal Compliance,** Sayonnha Mandal, Robin Gandhi, and Harvey Siy

4. **Hybrid Analysis of Intent Mechanism Vulnerabilities of Inter-Process Communication in Android Smartphones**, Babu Khadiranaikar

13:00-15:20 DASC Short Paper Session 2: Secure Computing I

Chair: Laurence T. Yang, St. Francis Xavier University, Canada

1. **Active Malware Countermeasure Approach for Mission Critical Systems,** Zachary Thomas and Sherif Abdelwahed

2. **Combating Data Leakage Trojans in Sequential Circuits Through Randomized Encoding**, Travis Schulze, Yiyu Shi, Daryl Beetner, Kevin Kwiat, Charles A. Kamhoua, and Laurent Njilla

3. **A Simulation Study to Detect Attacks on Internet of Things**, Dave Eastman and Satish Kumar

4. **Web-Based Malware Mitigation with a Virtualized Web-Browser: A Comparison Study**, Haklin Kimm, Nick Neely, Zachary Waldman, Mike Burns

5. **A Formal Verification Strategy for a Context-Aware Access Control Implementation's Confidentiality in the Internet of Things**, Douglas Simões Silva, Jean Martina, Rebecca Montanari, and Luca Foschini

6. **A Framework for Zero Day Exploit Detection and Containment**, Richard Ciancioso, Danvers Budhwa, and Thaier Hayajneh

7. **Electromagnetic Warfare and the Cybersecurity Threat,** Damianos Pinou, Rien Chy, and Thaier Hayajneh

8. **Autonomic Threat Avoidance and Self-Healing in DBMS,** Wajahat Munir, Basit Raza, Adeel Anjum, and Ahmad Kamran Malik

9. **An Optimized Spin-Based Approach for OSEK/VDX Applications,** Haitao Zhang and Jianwen Xiang

15:40-18:00 DASC Short Paper Session 3: Secure Computing II

Chair: Jian Zhou, University of Central Florida, USA

1. **Secrecy Capacity and Energy Efficiency Evaluation of RLS - Kaiser Based Smart Antenna System**, Hailu Belay Kassa, Kevin Kornegay, Yacob Astatke, and Marcial Tienteu

2. **RED-Based Model for Detecting and Avoiding Anomaly Network Congestion**, Abdulghani Ali Ahmed

3. **Hardening the Client-Side: A Guide to Enterprise-Level Hardening of Web Browsers,** Ananth Jillepalli, Daniel Conte de Leon, Frederick T. Sheldon, and Michael Haney

4. **WiP: A Probabilistic Study of the Relationship of Deception with Attacker Skills,** Sharif Hassan and Ratan Guha

5. **Towards a Real Time Framework for Monitoring IoT Devices for Attack Detection**, Rafael I. Bonilla and Cristina L. Abad

6. **A Metric for Measuring IoT Devices Security Levels**, Rafael I. Bonilla, Juan J. Crow, Luigi Basantes, and Luis Cruz

7. **Electronic Lecture timetable Scheduler using Genetic Algorithm**, Jumoke Soyemi, Lekan Akinode, and Samson Oloruntoba

8. **Structural Feature Engineering Approach for Detecting Polymorphic Malware,** Emmanuel Masabo, Kyanda Swaib Kaawaase, Julianne Sansa-Otim**,** and Damien Hanyurwimfura

9. **A Secure and Dependable Connected Smart Home System for Elderly,** Abdulhameed Alelaiwi, Mohammad Mehedi Hassan, and Md Zakirul Alam Bhuiyan

08:50-10:20 Workshop on Cyber Apps, Cyber and Economy (Cyber-ACE)

Chair: Xiaohua Feng, University of Bedfordshire, UK

1. **A Study of Physical Layer Techniques for 5G and Its Security Issues,** Yuping Zhao, Geng Li, and Wanyue Qu

2. **Develop a Detection System for Colour Stego Images Using Discrete Wavelet Transformation,** Saad Amin and Moumita Malek

3. **ROS Cyber Security,** Xiaohua Feng and Iroshan Abeykoon

4. **Cyber-Stalking Issues,** Xiaohua Feng, Audrey Asante, and Emma Short

10:40-12:00 PICom Short Paper Session

Chair: José Miguel Horcas, University of Málaga, Spain

1. **An Empirical Study of Power Consumption of Web-based Communications in Mobile Phones**, Inmaculada Ayala Viñas, Mercedes Amor Pinilla, Lidia Fuentes, and Daniel-Jesus Munoz Guerra

2. **Online Deceptive Product Review Detection Leveraging Word Embedding**, Xiu Li, Lulu Xie, Fan Zhang, and Huimin Wang

3. **On Feature Selection for the Prediction of Phishing Websites**, Wesam Fadheel

4. **Ring - Should I Interrupt or Not? - A Mobile Interruption Management System**, Mohammad Kayes Kaykobad, Praveen Madiraju, and Sheikh Iqbal Ahamed

5. **A Deep-Learning-Based Floor Detection System for the Visually Impaired**, Yueng Delahoz and Miguel Labrador

13:00-15:20 DataCom Session 7: Big Data Infrastructure, Clouds and HPC II

Chair: Xiaolin Li, University of Florida, USA

1. **PTree: Direct Lookup with Page Table Tree for NVM File Systems**, Jianqiang Zeng, Nong Xiao, Fang Liu, Lingyu Zhu, and Yang Li

2. **Promoting MLC STT-RAM for the Future Persistent Memory System**, Xunchao Chen, Jun Wang, and Jian Zhou

3. **Analysis and Modeling of Resource Management Overhead in Hadoop YARN Clusters**, Janardhanan Purackel Sankaran and Philip Samuel

4. **File System for Non-Volatile Main Memories: Performance Testing and Analysis**, Yang Li, Fang Liu, Nong Xiao, and Songping Yu

5. **Predicting Hospital Length of Stay Using Neural Networks on MIMIC III Data**, Robert Steele, Thanos Gentimis, Ala J Alnaser, Alex Durante, and Kyle Cook

6. **Distributed Algorithm for Geographic Opportunistic Routing in VANETs at Road Intersection**, Debasis Das

15:40-18:00 DataCom Short Paper Session

Chair: Lin Li, Prairie View A&M University, USA

1. **Review on HDD-Based, SSD-Based and Hybrid Key-Value Stores**, Juan Li, Nong Xiao, Zhiguang Chen, and Fang Liu

2. **Application of Logistic Regression in Assessing Stock Performances**, Usha Ananthakumar and Ratul Sarkar

3. **DeepSim: Cluster Level Behavioral Simulation Model for Deep Learning**, Yuankun Shi, Kevin Long, Kaushik Balasubramanian, Bianny Bian, Adam Procter, and Ramesh Illikkal

4. **Intelligent Perioperative System: Towards Big Data Analytics in Surgery Risk Assessment**, Zheng Feng, Rajendra Bhat, Xiaoyong Yuan, Daniel Freeman, Tezcan Baslanti, Azra Bihorac, and Xiaolin Li

5. **Seed Node Distribution for Influence Maximization in Multiple Online Social Networks**, Soham Das

6. **Effective Mobile Notification Recommendation Using Social Nature of Locations**, Prasanta Saikia and James She

7. **Building a Semi-Supervised Dataset to Train Journalistic Relevance Detection Models**, Nuno Guimarães and Álvaro Figueira

8. **Developing Adaptive Islamic Law Business Processes Models for Islamic Finance and Banking by Text Mining the Holy Qur'an and Hadith**, Munir Majdalawieh, Farhi Marir, and Issam Tiemsani

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Welcome to Orlando, the picturesque city and the second largest city in Florida, USA. The sunny and humid weather bestows the natural beauty to this city. The tourism and the pleasant weather turns this city to a regional cultural and economic zone. Various cultures and ethnicities are melting and thriving here. (Notice: the average daytime temperatures are around **25°C** (**78°F**) and the average minimum temperatures drop down to **14°C** (**57°F**) in November.)

Transportation:

Orlando is one of typical American cities on wheel. The most convenient way of transportation is driving. However, there are multiple ways of transportation you can choose from.

Car Rental:

- Orlando is the largest rental car market in the world, with most of the major car rental companies located on-airport (MCO), without the need for a shuttle bus to pick up your rental car.

- The rental car companies are located in Terminal A and Terminal B on the Ground Transportation Level (Level 1).

- Listed are the major rental car companies and their phone numbers:

  Almos (1-800-327-9633), Avis(1-800-831-2847), Budget(1-800-527-0700), Dollar(1-800-800-4000), Hertz(1-800-654-3131), National(1-800-227-7368), Thrifty(1-800-367-2277), Enterprise(1-800-325-2207)

Local Buses:

Located in Terminal A, on the Ground Transportation Level (Level 1), at Commercial Lane spaces A38-A41.

Cost: $2.00 for each destination. Additional connecting service to shopping and residential areas also available.

Please see the Lynx web site for more details including the complete schedule.

Taxi:

Ace Metro/Luxury Cab	407-855-1111
Diamond Cab Company	407-523-3333
Quick Cab	407-447-1444
Star Taxi	407-857-9999
Town & Country Transport	407-828-3035
Mears Tax Yellow/City Cab	407-422-2222
Uber/Lyft Application	Please provide a Visa, Master, American Express or Discovery Credit card that can be used in USA.

Airport Shuttle:

Mears Transportation Group
407-423-5566

Electricity

Electricity is supplied at 110 volts (60 hertz). Make sure to bring adapters and converters if necessary. Or you can buy them from local BestBuy or Walmart. Please note that power outlets in local USA look like the right figure

Day 1 (Monday, 6th November 2017)	
10:00-18:00	Registration /**Pre Function Space**
13:00-15:00	Tutorial I /**Como/Sheen**
15:00-15:30	Afternoon tea
15:30-17:30	Tutorial I /**Como/Sheen**
18:00-20:00	Welcome reception /**Royal/Sable meeting room**

Day 2 (Tuesday, 7th November 2017)				
Time	**Room 1 /Sheen**	**Room 2 /Lucerne**	**Room 3 /Emerald**	**Room 4 /Como**
08:00-18:00	Registration /**Pre Function Space**			
08:30-09:20	CyberSciTech/DASC/PICom/DataCom Conference Opening /**Lakes Ballroom**			
09:20-10:00	Keynote I /**Lakes Ballroom**			
10:00-10:40	Keynote II /**Lakes Ballroom**			
10:40-11:00	Morning tea /**Pre Function Space**			
11:00-12:00	CyberSciTech/PICom/DataCom Poster Session /**Gallery**			
12:00-13:00	Lunch /**Palm Breezes Restaurant**			
13:00-15:20	DataCom-1	CyberSciTech-1	DASC-1	PICom-1
15:20-15:40	Afternoon tea /**Pre Function Space**			
15:40-18:00	DataCom-2	CyberSciTech-2	DASC-2	PICom-2

Day 3 (Wednesday, 8th November 2017)				
Time	**Room 1 /Sheen**	**Room 2 /Lucerne**	**Room 3 /Emerald**	**Room 4 /Como**
08:30-18:00	Registration /**Pre Function Space**			
08:40-09:30	Keynote III /**Lakes Ballroom**			
09:30-10:10	Keynote IV /**Lakes Ballroom**			
10:10-10:30	Morning tea /**Pre Function Space**			
10:30-12:00	Joint Panel /**Lakes Ballroom**			
12:00-13:00	Lunch /**Palm Breezes Restaurant**			
13:00-15:20	DataCom-3	CyberSciTech-3	DASC-3	PICom-3
15:20-15:40	Afternoon tea /**Pre Function Space**			
15:40-18:00	DataCom-4	CyberSciTech-4	DASC-4	Cyber-ESEH
19:00-22:00	Banquet /**Lakes Ballroom**			

Day 4 (Thursday, 9th November 2017)				
Time	**Room 1 /Sheen**	**Room 2 /Lucerne**	**Room 3 /Emerald**	**Room 4 /Como**
08:30-16:00	Registration /**Pre Function Space**			
08:50-09:40	Keynote V	Cyber-SC & Cyber-EA	DASC-5	Cyber-ACE
09:40-10:20	Keynote VI			
10:20-10:40	Morning tea /**Pre Function Space**			
10:40-11:20	Keynote VII	Cyber-IoT	DASC-S1	PICom-S1
11:20-12:00	Keynote VIII			
12:00-13:00	Lunch /**Palm Breezes Restaurant**			
13:00-15:20	DataCom-5	CyberSciTech-5	DASC-S2	DataCom-7
15:20-15:40	Afternoon tea /**Pre Function Space**			
15:40-18:00	DataCom-6	CyberSciTech-S1	DASC-S3	DataCom-S1
18:00-18:20	Conference Closing			

Day 5 (Friday, 10th November 2017)	
09:30-11:30	Research visit and discussion at UCF