2018 IEEE Cyber Science and Technology Congress (CyberSciTech)

16th IEEE Intl Conf on Dependable, Autonomic and Secure Computing (DASC)

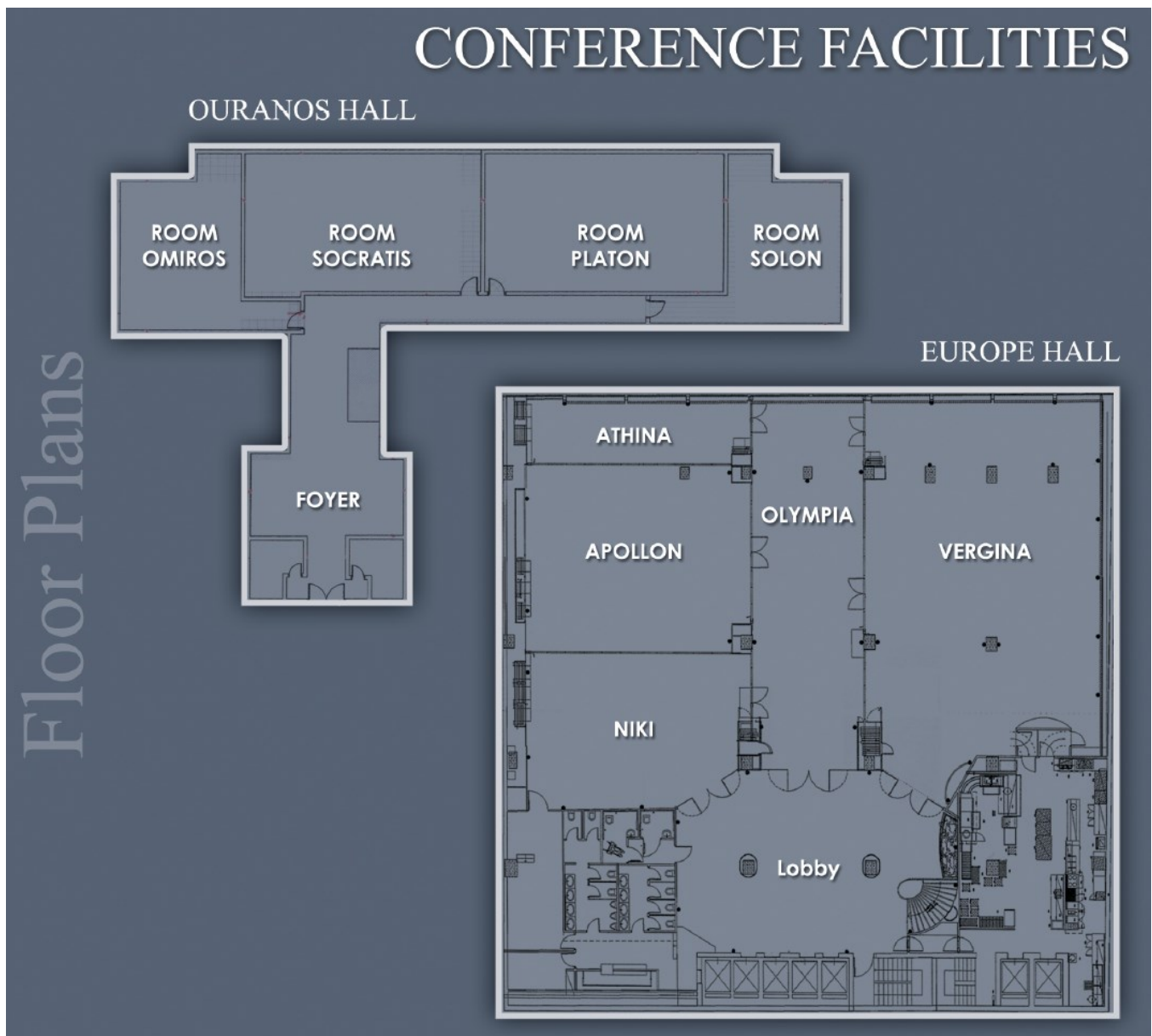**16th IEEE Intl Conf on Pervasive Intelligence and Computing (PICom)**

4th IEEE Intl Conf on Big Data Intelligence and Computing (DataCom)

Venue: Titania Hotel, Athens, Greece   Date: 12th-15th August 2018

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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 (Sunday, 12th August 2018)	
Time	
10:00-18:00	Registration/Foyer on Mezzanine Floor
13:00-15:00	Tutorial 1 (Rachid Benlamri)/Omiros Room, 10th Floor
15:00-15:30	Coffee Break/10th Floor Foyer
15:30-17:30	Tutorial 2 (Kaitai Liang)/Socrates Room, 10th Floor

Day 2 (Monday, 13th August 2018)				
Time	Room 1/Omiros	Room 2/Socrates	Room 3/Platon	Room 4/Solon
08:00-18:00	Registration/Foyer on Mezzanine Floor			
08:20-09:10	Conference Opening/Apollon-Athina Hall, Mezzanine Floor			
09:10-09:50	Keynote I (Vincenzo Piruri)/Apollon-Athina Hall, Mezzanine Floor			
09:50-10:20	Coffee Break /Foyer of Mezzanine floor			
10:20-11:00	Keynote II (Guojun Wang)/Apollon-Athina Hall, Mezzanine Floor			
11:00-12:00	Poster Session/Niki Hall, Mezzanine Floor			
12:00-13:00	Lunch/Olive Garden Roof Top Rest			
13:00-15:20	DASC Session 1	PICom Session 1	CyberSciTech Session 1	DataCom Session 1
15:20-15:40	Coffee Break/10th Floor Foyer			
15:40-18:20	DASC Session 2	PICom Session 2	CyberSciTech Session 2	DataCom Session 2
18:45-20:45	Welcome Reception/Europe hall foyer, Mezzanine Floor			

Day 3 (Tuesday, 14th August 2018)				
Time	Room 1/Omiros	Room 2/Socrates	Room 3/Platon	Room 4/Solon
08:00-18:00	Registration/Foyer on Mezzanine Floor			
08:40-09:20	Keynote III (Valerio Pascucci)/Apollon-Athina Hall, Mezzanine Floor			
09:20-10:00	Keynote IV (Giancarlo Fortino)/Apollon-Athina Hall, Mezzanine Floor			
10:00-10:30	Coffee Break/Foyer of Mezzanine Floor			
10:30-12:00	Panel Discussion/Apollon-Athina Hall, Mezzanine Floor			
12:00-13:00	Lunch/Olive Garden Roof Top Rest			
13:00-15:20	DASC Session 3	CyberSciTech Session 3	CyberSciTech Session 4	DataCom Session 3
15:20-15:40	Coffee Break/10th Floor Foyer			
15:40-18:20	DASC Session 4	CyberSciTech Session 5	CyberSciTech Session 6	HISSD
19:00-22:00	Banquet/Niki-Apollon Hall, Mezzanine Floor			

Day 4 (Wednesday, 15th August 2018)				
Time	Room 1/Omiros	Room 2/Socrates	Room 3/Platon	Room 4/Solon
08:00-12:00	Registration/Foyer on Mezzanine Floor			
09:00-09:40	Keynote V (Laurence T. Yang)/Apollon-Athina Hall, Mezzanine Floor			
09:40-10:10	Coffee Break/Foyer of Mezzanine Floor			
10:10-12:30	DASC+PICom WiP Session	CyberSciTech WiP Session	CSC&CEA/EDCSTA/Cyber-IoT	DataCom WiP Session
12:30-13:30	Lunch/Olive Garden Roof Top Rest			
13:30-14:30	Discussion Session			
14:30-15:00	Coffee Break /10th Floor Foyer			

2018 CyberSciTech/DASC/PICom/DataCom Program Preview

Tutorials

Tutorial I: Rachid Benlamri, Lakehead University, Canada
Semantic Interoperability Challenges for Healthcare Big Data
Tutorial II: Kaitai Liang, University of Surrey, UK
Blockchain Encounter Security - The Security Aspects of Blockchain You Need to Know

Keynotes

Keynote I: Vincenzo Piuri, Università degli Studi di Milano, Italy
Artificial Intelligence for Cloud Computing Management
Keynote II: Guojun Wang, Guangzhou University, China
Cleanroom Computing: Building a Strong Mutual Trust among Service Providers and Users
Keynote III: Valerio Pascucci, University of Utah, USA
Extreme Data Management, Analysis, and Visualization for Scientific Discovery and Economic
Keynote IV: Giancarlo Fortino, University of Calabria, Italy
Integrating Internet of Things Platforms: A Methodological Perspective
Keynote V: Laurence T. Yang, St Francis Xavier University, Canada
Cyber-Physical-Social Systems: Design Automation and Data Analytics

Joint Panel

Topic: The Future of Cybermatics: AI and Blockchain Empowered Cyberization
Panel Moderators:
Zhong Chen, Peking University, China
Runhe Huang, Hosei University, Japan
Panelists:
Vincenzo Piuri, University of Milan, Italy
Frank Hsu, Fordham University, USA
Qun Jin, Waseda University, Japan
Yanchun Zhang, Victoria University, Australia
Valerio Pascucci, University of Utah, USA
Paulo Pires, Federal University of Rio de Janeiro, Brazil

CyberSciTech 2018 Sessions

CyberSciTech Session 1: Cyber Physical Computing and Systems

CyberSciTech Session 2: Cyberspace & Cyber Security I

CyberSciTech Session 3: Cyber Social Computing & Networks

CyberSciTech Session 4: Cyber Intelligence, Life & Mind I

CyberSciTech Session 5: Cyber Intelligence, Life & Mind II

CyberSciTech Session 6: Cyberspace & Cyber Security II

CyberSciTech WiP (Work-in-Progress) Paper Session

CyberSciTech Poster Paper Session

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

CSC&CEA: Special Session on Cyber Social Computing and Cyber-Enabled Applications

EDCSTA: Workshop on Emerging Dependable Computing System Technologies and Apps

HISSD: Workshop on Healthcare with Intelligent Sensing, System, and Data

DASC 2018 Sessions

DASC Session 1: Dependable computing

DASC Session 2: Reliable Computing

DASC Session 3: Secure Distributed and Cloud Systems

DASC Session 4: Dependable Networks, IoT and Mobile Computing

DASC WiP Paper Session: Security Analysis and Detection

DASC Poster Paper Session

PICom 2018 Sessions

PICom Session 1

PICom Session 2

PICom WiP Paper Session

PICom Poster Paper Session

DataCom 2018 Sessions

DataCom Session 1: Analytics Theorem, Systems and Tools

DataCom Session 2: Big Data Intelligence and Applications

DataCom Session 3: Bid Data Analysis & Applications and WiP Paper Session

DataCom WiP Paper Session

General Chairs Message

Welcome to the 2018 confederated Cyber Science and Technology Congress and the four co-located conferences: the 16th International conference on Dependable, Autonomic and Secure Computing (DASC), the 16th International conference on Pervasive Intelligence and Computing (PICom), the 4th International conference on Big Data Intelligence and Computing (DataCom) and the 3rd International conference on CyberSciTech. This year's congress takes place in the historic city of Athens, a few hundred meters away from one of the most recognizable monuments in the world: The Parthenon. As with past conferences, we hope to excite and inspire attendees with the many events scheduled as part of Cyber Science and Technology Congress 2018.

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 especially to its Chair Prof. Jianhua Ma. Special thanks should go to our General Executive Chair Kevin I-Kai Wang. Without his invaluable work and overall coordination the Cyber Science and Technology Congress 2018 would not be realized.

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 the colleagues who served as the DASC General Chair Md Zakirul Alam Bhuiyan, Fordham University, USA; the PICom General Chair Dr. Flavia C. Delicato, Federal University of Rio de Janeiro, Brazil; and the Datacom General Chair Anna Kobusińska, Poznan University of Technology, Poland.

Tremendous thanks go the local organizers from University of West Attica, Greece, to our Registration Chair Bernady O. Apduhan, and to our Web Chairs, Andrew Chen, The University of Auckland, New Zealand; and Savvas Zinonos, Cyprus University of Technology, Cyprus.

We are also grateful to our sponsors at IEEE and IEEE Technical Committee of Scalable Computing, the Technical Committee on Cybermatics of the IEEE Systems, Man and Cybernetics, and the Smart World Technical Committee (SWTC) of the IEEE Computational Intelligence Society.

We wish to thank the entire conference committee for handling many different aspects of the conference, and we also wish to recognize the student volunteers, especially the members of the Image Retrieval and Collective Intelligence group of the Cyprus University of Technology. 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 Chairs of the Cyber Science and Technology Congress 2018. We hope that the conference will be a stimulating, informative, enjoyable, and fulfilling experience to all who attend.

Klimis Ntalianis
General Chair of CyberSciTech 2018, General Executive Chair of DASC, PICom, DataCom 2018
Nicolas Tsapatsoulis, Bernady O. Apduhan
General Chairs of CyberSciTech 2018

Message from CyberSciTech 2018
Program Chairs and General Executive Chairs

In modern society, digital technology is an inseparable part of human lives. With the technology advancement, challenges and issues of transdisciplinary nature also arise that require careful study, investigation, and discussion. The aim of CyberSciTech Congress is to address the broad challenges in Cyber Science and Technology and to offer a common platform for our fellow scientists, engineers, industrial practitioners, and researchers to present and exchange their latest ideas, discoveries, and implementations. Therefore, it is our great honor and pleasure to welcome all our participants to the 2018 Cyber Science and Technology Congress (CyberSciTech 2018) held in Athens, Greece on 12-15 August, 2018. CyberSciTech 2018 is sponsored by the IEEE Computer Society. It is co-located with the 16th IEEE International Conference on Dependable, Autonomic and Secure Computing (DASC 2018), the 16th IEEE International Conference on Pervasive Intelligence and Computing (PICom 2018), and the 4th IEEE International Conference on Big Data Intelligence and Computing (DataCom 2018).

To address the comprehensive nature and emerging challenges of Cyberization, CyberSciTech 2018 offers four technical tracks on the topics of Cyberspace & Cyber Security, Cyber Physical Computing & Systems, Cyber Social Computing & Networks, and Cyber Intelligence, Life & Mind. In addition, four special sessions/workshops on the topics of Cyber Social Computing and Cyber-Enabled Applications (CSC&CEA), Computing and Applications for Cyber Internet of Things (Cyber-IoT), Emerging Dependable Computing System Technologies and Applications (EDCSTA), and Healthcare with Intelligent Sensing, System, and Data (HISSD) are jointly organised. Overall, CyberSciTech 2018 received 145 submissions covering a wide range of topics. Finally, 43 high quality regular papers (30%), 13 Work-in-Progress papers, 8 poster papers are included in the 2018 Proceedings. Another 15 papers are accepted in four special sessions/workshops. All accepted papers are selected based on a rigorous peer review process.

There is always a great team behind a successful event. We like to take this chance to thank the entire organizing committee, especially the Steering Committee Prof. Jianhua Ma (Chair), Prof. Qun Jin, Prof. Laurence Yang and Prof. Hui-Huang Hsu; and the General Chairs Prof. Klimis Ntalianis, Prof. Nicolas Tsapatsoulis, and Prof. Bernady O. Apduhan, for their leadership and dedicated hard working. We also like to thank the Special Session Chairs Dr. Weimin Li, Dr. Yaser P. Fallah and Dr. Ah-Lian Kor, and all the Special Session Organizers for their great effort in organizing the special sessions and enriching the scope of our discussion. We want to express our gratitude to our Panel Chairs, Prof. Zhong Chen and Prof. Runhe Huang, on organising such visionary panel discussion topic with world renowned panelists. Of course, we want to express our sincere gratitude to all of the authors, participants, Keynote/Tutorial speakers, PC members, and many others who greatly contributed to CyberSciTech 2018 in many different ways. We sincerely hope all of you find CyberSciTech 2018 stimulating and helpful to your future research work and research network building. Please enjoy your visit and stay in the city of wisdom, Athens!

Yier Jin, Valeriy Vyatkin, Jahna Otterbacher, and Payam Barnaghi
Program Chairs of CyberSciTech 2018
Shujun Li, Wenbin Dai, Xiaokang Zhou, and Wenbing Zhao
Program Co-Chairs of CyberSciTech 2018

Kevin I-Kai Wang, Kim-Kwang Raymond Choo
General Executive Chairs of CyberSciTech 2018

Message from DASC 2018
Program Chairs and General Chairs

It is our great pleasure to welcome you to the 16th IEEE International Conference on Dependable, Autonomic and Secure Computing (DASC-2018), hosted in Athens from 12th to 15th August, 2018.

DASC covers important and contemporary topics related to autonomy, dependability and security concerns in large-scale, complex distributed information systems. These systems face inevitable problems of accidental/deliberate faults, malicious attacks, illegal intrusions, and natural disasters, leading consequently to limitations in the availability and reliability. As a promising means to implement dependable and secure systems, autonomic computing technology can be explored. Trusted and autonomic computing and communications 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. Hence, DASC-2018 strives to bring together computer scientists, industrial engineers, and researchers to discuss and exchange experimental and theoretical results, experience, and case studies on all aspects of autonomic, dependable, and secure computing, its applications, and to identify new research topics and trend-setting ideas.

This year, IEEE DASC-2018 is co-located with IEEE PICom, IEEE CyberSciTech, and IEEE DataCom. DASC-2018 received more than 70 high-quality submissions covering a wide range of topics. At the end, 29 full papers (39%), 5 work-in-progress papers and 1 poster are included in the proceedings and to be presented in DASC-2018. All accepted papers are selected based on a rigorous peer review process. To encourage authors and promote the work presented at DASC, we are delighted to inform that a selection of the best papers accepted and presented at the conference will be invited for regular or special issues of reputable journals: Elsevier Information Fusion, Elsevier Information Sciences, Elsevier Future Generation Systems, IEEE Access, and many more.

An international conference of this scale requires the support of many people. We would like to take this opportunity to thank all the members of the organizing committee, especially the Honorary Chairs Prof. Alberto Del Bimbo and Prof. Vincenzo Piuri; the Steering Chairs Prof. Jianhua Ma and Prof. Laurence Yang for their support, guidance, and their contribution to attracting high quality papers. Thanks to all reviewers for their valuable time and effort in reviewing the papers. Thanks also go to the entire local arrangement committee members, including General Executive Chair Prof. Klimis Ntalianis and Prof. Paulo Pires for their help in making the conference a wonderful success. Special thanks go to Savvas Zinonos for his prompt support to manage the conference Web page, paper submission, and so on, which facilitated the overall process. We take this opportunity to thank also 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.

It was our great honour and pleasure to accept the responsibilities and challenges of Conference General and Program Chairs. We trust that you will enjoy the academic program within DASC-2018, and at the same time that you will be able to see some of the surrounding natural beauty of the region. We look forward to seeing you at the IEEE DASC-2018 event.

Md Zakirul Alam Bhuiyan and Stefanos Gritzalis,
General Chairs of DASC-2018
Anna Kobusińska,
Program Chair of DASC-2018
Kambourakis Georgios, Naohiro Hayashibara, Tian Wang,
Program Co-Chairs of DASC-2018

Message from PICom 2018
Program Chairs and General Chairs

It is our pleasure to welcome you to the 16th IEEE International Conference on Pervasive Intelligent and Computing (PICom 2018). We are experiencing a moment in human history in which technological innovations occur at an unprecedented pace. Emerging technologies have the potential to change the way we live and interact among ourselves and with the environment. Computers have become ever smaller and all types of daily life objects are being instrumented with sensors and actuators able to monitor and act upon the physical environment. Beyond the ability to perceive phenomena in the real world, such objects are increasingly equipped with capabilities to process, reason over monitored data, detect and react to events, perform inferences, and generate useful knowledge, thus becoming smart objects. With the evolution of wireless technologies, these objects also become able to communicate with each other, with other real and virtual systems and entities, and to cooperate for performing complex tasks. When an environment is broadly pervaded with smart objects, that is what we call ubiquitous or pervasive intelligence.

Since its first edition in 2003, PICom has been established as a premier conference aiming to cover all dimensions of the 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.

This year, we received many high-quality submissions from several parts of the world, that underwent a rigorous peer review process. At the end, 14 full papers (35%), 4 Work-in-Progress papers and 2 posters were included in the proceedings and will be presented in PICom-2018. To encourage authors and promote the high-quality work presented at PICom, we are delighted to inform that a selection of the best papers will be invited for regular or special issues of four reputable journals: Elsevier Information Fusion, Springer World Wide Web, MDPI Sensors and Elsevier Computers & Electrical Engineering. 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, Prof. Laurence T. Yang and Prof. Adnan Al-Anbuky, for nourishing the conference and wisely guiding its course. Our heartfelt thanks to our General Executive Chair, Prof. Klimis Ntalianis, 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. Without their help, this program would not be possible. We appreciate the valuable help of our Publicity Chairs for disseminating the announcements and calls of our conference. Special thanks go to Savvas Zinonos 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 2018 edition of PICom is held in the ancient and mythical Athens, a city of unique beauty and one of the birthplaces of Western culture. We hope that participants will enjoy, in addition to learning opportunities and academic and professional interactions, the numerous local attractions.

Flavia C. Delicato and Nikolaos Doulamis
General Chairs of PICom 2018
Giancarlo Fortino, Pietro Manzoni, Qiang Yang and Vana Kalogeraki
Program Chairs of PICom 2018

Message from DataCom 2018
Program Chairs and General Chairs

It is our great honour and pleasure to welcome you to the Fourth IEEE International Conference on Big Data Intelligence and Computing (IEEE DataCom 2018), hosted in Athens, Greece, from the 12th to 15th of August 2018.

Big data is a rapidly expanding research area spanning the fields of computer science and information management, and has become a ubiquitous term in understanding and solving complex problems in different disciplinary fields such as engineering, applied mathematics, medicine, computational biology, healthcare, social networks, finance, business, and telecommunications. The goal of IEEE DataCom 2018 is to establish an international forum for engineers and scientists to present their ideas and experiences in the fields of Big Data intelligence and computing.

This year, IEEE DataCom 2018 is held together with IEEE CyberSciTech 2018, IEEE DASC 2018 and IEEE PICom 2018. In response to the call for papers, 61 papers were submitted to DataCom 2018. These papers were evaluated on the basis of their significance, novelty, technical quality, and practical impact. At the end, 17 (28%) high quality full research papers and work-in-progress papers, with average of 3 reviews per paper, are included in the proceedings and to be presented. 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 2018 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. Klimis Ntalianis and Prof. Anna Kobusinska 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 conference 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 2018, and hope that you find the conference stimulating and interesting for your research and professional activities.

Feng Xia, Cleo Sgouropoulou
Program Chairs of IEEE DataCom 2018
Manish Parashar, Christos Skourlas
General Chairs of IEEE DataCom 2018

Aug 12 (Day 1) 13:00-15:00 Tutorial 1

**Semantic Interoperability Challenges
for Healthcare Big Data**
Prof. Rachid Benlamri
Lakehead University, Canada
https://flash.lakeheadu.ca/~rbenlamr/

Abstract: The present landscape of healthcare is one of escalating costs coupled with an aging population with increasing complexity in concurrent chronic medical illnesses. Care provisioned to these patients relies on data from different sources, such as archives of medical history records, laboratory test results, diagnostic images, prescribed medication, and data from monitoring equipment and wearables. This enormous amount of heterogeneous complex medical data is currently stored and treated by most healthcare organizations in isolation. However, Semantic Web technologies and big data tools have the potential to create significant value by improving outcomes of personalized, predictive and preventive medicine while lowering costs. This presents an urgent need for solving data semantic interoperability issues, which are crucial towards developing novel ways to expose, structure, and exchange healthcare information. Also, this will allow for developing new, scalable and expandable big data infrastructure and analytical methods that can enable healthcare providers access and exchange knowledge in a timely manner, thus providing better outcomes. This talk addresses the above-mentioned challenges by discussing the role of Semantic Web and data analysis for generating high quality actionable data that makes big data robust. Also, we will discuss some of the technical challenges in using big data and the need for a semantic data-driven infrastructure based on ontology design, EHR standards, clinical pathway automation, and machine learning to address them.

Biography: Rachid Benlamri is a Professor of Software Engineering at the Faculty of Engineering at Lakehead University, Canada. He obtained his Master and PhD from the University of Manchester - UK. Professor Benlamri is the head of the Semantic Web and Mobile Computing Lab at Lakehead University. His research interests are in the area of Semantic Web, Data Science, Ubiquitous Computing and Mobile Knowledge Management. His research is funded by many institutions, such as the Natural Sciences and Engineering Research Council of Canada, Ontario Center of Excellence, Academic Health Science Centers of Ontario, and the Ontario Partnership for Innovations and Commercialization. He supervised over 80 students and postdoctoral fellows. He served as keynote speaker, and general chair for many international conferences. Professor Benlamri is a member of the editorial board for many international journals, such as the International Journal of Mobile Communications, the International Journal of Emerging Technologies in Web Intelligence, and the International Journal of Business Data Communications and Networking. He has authored/co-authored six books and over 100 papers in refereed journals and conference proceedings.

Aug 12 (Day 1) 15:30-17:30 Tutorial 2

Blockchain Encounter Security - The Security Aspects of
Blockchain You Need to Know
Dr. Kaitai Liang
University of Surrey, UK
https://www.surrey.ac.uk/people/kaitai-liang

Abstract: To date blockchain technology has been used in many real-world applications, e.g., finance, cloud-based storage. Everyone now talks about it. Although being a popular and attention attracted technique, blockchain yields security and privacy concerns, specially while it intakes personal information. In this talk, I will first introduce basic concepts, notions and mechanisms of blockchain. Standing at the view point of applied cryptography, I will further present some security and privacy requirements, concerns and solutions for the use of blockchain.

Biography: Dr Kaitai Liang is an Assistant Professor in Secure Systems at the University of Surrey, UK, and member of the Surrey Centre for Cyber Security, a GCHQ recognised UK Academic Centre of Excellence in Cyber Security Research. Kaitai received the PhD degree in computer science (applied cryptography direction) from City University of Hong Kong in 2014. Prior to SURREY, Kaitai was a Lecturer in School of Computing, Mathematics and Digital Technology, Manchester Metropolitan University; postdoctoral researcher at Department of Computer Science, Aalto University (Finalnd); visiting scholar at Department of Computer Science, UCL; visiting scholar at KU LEUVEN (Belgium), Sapienza University of Rome (Italy) and University of Wollongong (Australia); research intern in Institute for Infocomm Research (Singapore). Kaitai has been involved in several European funded projects. His main research interests are applied crypto, post-quantum crypto, data security, blockchain, smart contract and privacy-enhancing technology. Kaitai has published a series of research works, applying secure tools to tackle real-world problems, in many high tier international journals (e.g., IEEE TIFS, IEEE NETWORK, and IEEE Transactions on Industrial Informatics). Kaitai has served as TPC for many renown international security/privacy conferences, e.g., ACNS, TRUSTCOM, ASIACCS, ACISP, ProvSec, and he was the pc chair of International workshop on Security in Big Data. Kaitai is also an ISO member of UK ISO Crypto Sub Committee IST/33/2.

Artificial Intelligence for Cloud Computing Management
Prof. Vincenzo Piuri
Università degli Studi di Milano, Italy
http://www.di.unimi.it/piuri

Abstract: Recent years have seen a growing interest among users in the migration of their applications to the Cloud computing environments. However, due to high complexity, Cloud-based services often experience a large number of failures and security breaches, and consequently, impose numerous challenges on the dependability and resilience of users' applications.

Unfortunately, current dependability and resilience solutions focus either on the infrastructure itself or on application analysis, but fail to consider the complex inter-dependencies between system components and application tasks. This aspect is highly crucial especially when Cloud environments are used, as it is increasingly considered nowadays, in critical applications.

Besides, definition of application requirements, allocations of resources to application tasks, and optimization of global management parameters usually are based either on statistical approaches or on heuristics strategies typical of operating research. Computational intelligence may give additional opportunities and flexibility in specifying the requirements especially when they are defined by non-experts and in optimizing the resource allocation and the global management parameters.

This talk will discuss a user-centric, dependability- and resilience-driven framework that considers deploying and protecting users' applications in the Cloud infrastructure so as to minimize their exposure to the vulnerabilities in the network, as well as offering fault tolerance and resilience as a service to the users who need to deploy their applications in the Cloud.

In this scenario, the talk analyzes the opportunities offered by computational intelligence to specify the characteristics and the requirements of these environments and support their management in the presence of many local optimization minima.

Biography: Professor Vincenzo Piuri has received his Ph.D. in computer engineering at Politecnico di Milano, Italy (1989). He has been Associate Professor at Politecnico di Milano, Italy and Visiting Professor at the University of Texas at Austin and at George Mason University, USA. He is Full Professor in computer engineering at the Università degli Studi di Milano, Italy (since 2000).

His main research interests are: intelligent systems, cloud computing, fault tolerance, signal and image processing, machine learning, pattern analysis and recognition, theory and industrial applications of neural networks, biometrics, intelligent measurement systems, industrial applications, digital processing architectures, embedded systems, and arithmetic architectures. Original results have been published in more than 400 papers in international journals, proceedings of international conferences, books, and book chapters.

He is Fellow of the IEEE, Distinguished Scientist of ACM, and Senior Member of INNS. He has been IEEE Vice President for Technical Activities (2015), IEEE Director, President of the IEEE Computational Intelligence Society, Vice President for Education of the IEEE Biometrics Council, Vice President for Publications of the IEEE Instrumentation and Measurement Society and the IEEE Systems Council, and Vice President for Membership of the IEEE Computational Intelligence Society. He is Editor-in-Chief of the IEEE Systems Journal (2013-19) and Associate Editor of the IEEE Transactions on Computers and the IEEE Transactions on Cloud Computing, and has been Associate Editor of the IEEE Transactions on Neural Networks and the IEEE Transactions on Instrumentation and Measurement.

He received the IEEE Instrumentation and Measurement Society Technical Award (2002) for the contributions to the advancement of theory and practice of computational intelligence in measurement systems and industrial applications. He is Honorary Professor at the Obuda University, Budapest, Hungary (since 2014), Guangdong University of Petrochemical Technology, China (since 2014), the Muroran Institute of Technology, Japan (since 2016), and the Amity University, India (since 2017).
More information are available at http://www.di.unimi.it/piuri

AUG 13 (Day 2) 09:50-10:30 Keynote II

Cleanroom Computing: Building a Strong Mutual Trust among Service Providers and Users
Prof. Guojun Wang
Guangzhou University, China
http://trust.gzhu.edu.cn/faculty/~csgjwang/

Abstract: New-generation operating systems for network computing are facing challenges for providing efficient and secure services. Unfortunately, many users still hesitate to embrace this brand-new network computing services due to their lack of trust in such kind of services. For building a strong mutual trust among service providers and users, we propose to require service providers and users to sign bilateral cleanroom security agreements to ensure that only such software associated with such agreements are executable on service providers and/or user clients. We present a cleanroom computing and cleanroom security approach to monitor software streams flowing from software repositories to servers and/or clients, and to keep those cleanroom security agreements tamper-proof. We also present a runtime cleanroom framework for securing software execution based on hardware-assisted integrity verification and cryptographic techniques. Research results provide significant theoretical and practical supports in building efficient and secure new-generation operating systems for network computing.

Biography: Guojun Wang received B.Sc. degree in Geophysics, M.Sc. degree in Computer Science, and Ph.D. degree in Computer Science, at Central South University, China, in 1992, 1996, 2002, respectively. He is a Pearl River Scholarship Distinguished Professor of Higher Education in Guangdong Province, a Doctoral Supervisor of School of Computer Science and Technology, Guangzhou University, China. He has been listed in "Chinese Most Cited Researchers" (Computer Science) by Elsevier in the past four consecutive years (2014-2017). He had been a Professor at Central South University, China; an Adjunct Professor at Temple University, USA; a Visiting Scholar at Florida Atlantic University, USA; a Visiting Researcher at the University of Aizu, Japan; and a Research Fellow at the Hong Kong Polytechnic University, HK. His research interests include artificial intelligence, big data, cloud computing, mobile computing, trustworthy/dependable computing, cyberspace security, recommendation systems, and mobile healthcare systems. He has published more than 300 technical papers and books/chapters in the above areas. His research is supported by Key Project of the National Natural Science Foundation of China, the National High-Tech Research and Development Plan of China (863 Plan), and the Ministry of Education Fund for Doctoral Disciplines in Higher Education. He has served as an associate editor or on editorial board of some international journals including IEEE Transactions on Parallel and Distributed Systems (TPDS), Security and Communication Networks (SCN), and International Journal of Parallel, Emergent and Distributed Systems (IJPEDS). He is the Leading Steering Chair of the IEEE International Conference on Trust, Security and Privacy in Computing and Communications (TrustCom), and the Leading Steering Chair of the International Conference on Security, Privacy and Anonymity in Computation, Communication and Storage (SpaCCS). He is a member of IEEE (2010-), a member of ACM (2011-), a member of IEICE (2011-), and a distinguished member of CCF (2013-).

AUG 14 (Day 3) 09:00-09:40 Keynote III

**Extreme Data Management, Analysis, and
Visualization for Scientific Discovery and Economic
Development**
Prof. Valerio Pascucci
University of Utah, USA
http://cedmav.com

Abstract: Effective use of data management techniques for the analysis and visualization of massive data models is crucial for the success of any supercomputing center, for creating a data-intensive scientific investigation cyberinfrastructure, and for a growing number of industrial endeavors. As exascale computing progresses, data movement challenges have fostered innovation leading to complex streaming workflows which take advantage of being able to process in-motion data. This technology is also being used to more broadly investigate sensing data and is being deployed in commercial products, with direct economic and societal impact.

The techniques developed at the Center for Extreme Data Management Analysis and Visualization (CEDMAV) allow for the building of a scalable data movement infrastructure for fast I/O while organizing the data in a way that makes it immediately accessible for analytics and visualization. In this talk I will share not only these techniques, but also a topological analytics framework that allows for processing data in-situ and for achieving massive data reductions while maintaining the ability to explore the full parameter space for a featured selection.

Overall, this technological innovation leads to a flexible data streaming workflow that allows for working with massive simulation models without compromising the interactive nature of the exploratory process that is characteristic of the most effective data analytics and visualization environment. These data streaming technologies are increasingly useful in experimental facilities, e.g., microscopes used in neuroscientific research, and synchrotron light sources for materials science. The distributed deployment of these technologies is poised to provide cost effective solutions in fields such as precision agriculture, surveillance, telemedicine, and many others as well.

Biography: Dr. Valerio Pascucci is the John R. Parks Inaugural Endowed Chair of the University of Utah and the Founding Director of the Center for Extreme Data Management Analysis and Visualization (CEDMAV). Valerio is also a Faculty of the Scientific Computing and Imaging Institute, a Professor of the School of Computing, University of Utah, and the CEO of ViSUS LLC (visus.net with open source distributions at visus.org). Valerio was named Laboratory Fellow at PNNL and was recently a visiting professor in KAUST University. Before joining the University of Utah, Valerio was the Data Analysis Group Leader of the Center for Applied Scientific Computing at Lawrence Livermore National Laboratory, and an Adjunct Professor of Computer Science at the University of California Davis. Valerio's research interests include Big Data management and analytics, progressive multi-resolution techniques in scientific visualization, High Performance Computing, discrete topology, geometric compression, computer graphics, computational geometry, geometric programming, and solid modeling. Valerio's interests in fundamental research are also complemented by entrepreneurial activities that facilitate the societal impact of new technology the commercialization of innovative products. Valerio is the coauthor of more than two hundred refereed journal and conference papers and book chapters and is an Associate Editor of the IEEE Transactions on Visualization and Computer Graphics.
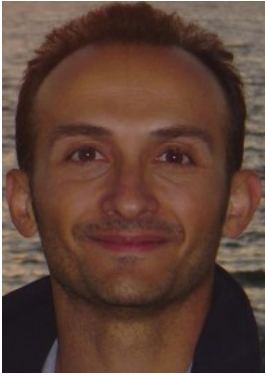
AUG 13 (Day 2) 09:40–10:20 Keynote IV

Integrating Internet of Things Platforms:
A Methodological Perspective
Professor Giancarlo Fortino
University of Calabria, Italy
https://www.researchgate.net/profile/Giancarlo_Fortino

Abstract: The integration of existing and future smart cyberphysical systems within a fully realized Internet of Things (IoT) cannot dismiss the requirement of interoperability. The absence of standards for the IoT along with its intrinsic complexity demand for proper methodologies in order to fully support the development of heterogeneous, but interoperable, IoT systems as well as their integration. However, at the state-of-the-art, no methodologies for IoT systems integration are available. To fill this gap, in this keynote, the INTER-METH engineering methodology is presented. Developed in the context of the European H2020 project named INTER-IoT (http://www.inter-iot-project.eu/), INTER-METH supports the integration process of heterogeneous IoT platforms from the analysis to the maintenance phase. Its main features as well as its abstract and instantiated process schema are described; in particular, in this talk the focus will be on the analysis and design phase that are fundamental for driving the integration process. Moreover, we also describe a purposely developed tool supporting the application of INTER-METH, named INTER-CASE. Specifically, the application of INTER-CASE in the domain of INTER-HEALTH, a main use case of INTER-IoT, will be discussed.

Biography: Professor Giancarlo Fortino is currently a Professor of Computer Engineering (since 2006) at the Dept. of Informatics, Modeling, Electronics and Systems (DIMES) of the University of Calabria (Unical), Rende (CS), Italy. He has a Ph. D. degree and Laurea (MSc+BSc) degree in Computer Engineering from Unical. He holds the Italian Scientific National Habilitation for Full Professorship and is High-end Foreign Expert of China, Adjunct Professor at the Wuhan University of Technology (China), Senior Research Fellow at the Italian National Research Council - ICAR Institute, and High-end Expert at HUST Univ. (China). He has been also Visiting Researcher and Professor at the International Computer Science Institute (Berkeley, USA) and at the Queensland University of Technology (Australia), respectively. His main research interests include agent-based computing, body area networks, wireless sensor networks, pervasive and cloud computing, multimedia networks and Internet of Things technology. He participated to many local, national and international research projects and currently is the vice coordinator and STPM of the EU-funded H2020 INTER-IoT project He authored over 350 publications in journals, conferences and books. He chaired 85+ Int'l conferences/workshops as co-chair, organized 35+ special issues in well-known ISI-impacted Int'l Journals, and participated in the TPC of 400+ conferences. He is in the list of Top Italian Scientists (TIS) by VIA-academy (http://www.topitalianscientists.org/), with h-index=35 and 4300+ citations according to GS. He is the founding editor of the Springer Book Series on "Internet of Things: Technology, Communications and Computing", and currently serves (as associate editor) in the editorial board of IEEE Transactions on Affective Computing, IEEE Transactions on Human-Machine Systems, IEEE Sensors Journal, IEEE Access, Journal of Networks and Computer Applications, Engineering Applications of Artificial Intelligence, Information Fusion. He is the recipient of the 2014 Andrew P. Sage SMC Transactions Paper award. He is co-founder and CEO of SenSysCal S.r.l., a spin-off of Unical, developing innovative IoT-based systems for e-health and domotics. He is IEEE Senior member, member of the IEEE SMCS Board of Governors, the Chair of the IEEE SMC Italian Chapter, and founding chair of the IEEE SMC Technical Committee on "Interactive and Wearable Computing and Devices".

AUG 15 (Day 4) 09:00−09:40 Keynote V

Cyber-Physical-Social Systems:
Design Automation and Data Analytics
Prof. Laurence T. Yang
St Francis Xavier University, Canada
http://cs.stfx.ca/~ltyang/

Abstract: The Cyber-Physical-Social Systems (CPSS) are the integration of computation, communication and control with the physical world, human knowledge and sociocultural elements. It is a novel emerging computing paradigm and has attracted wide concerns from both industry and academia in recent years. Currently, CPSS are still in their infancy stage. Our first ongoing research is to study effective and efficient approaches for CPSS modeling and general system design automation methods, as well as methods analyzing and/or improving their power and energy, security, trust and reliability features.

Once the CPSS have been designed, they collect massive data (Volume) from the physical world by various physical perception devices (Variety) in structured/semi-structured/unstructured format and respond the users' requirements immediately (Velocity) and provide the proactive services (Veracity) for them in physical space or social space. These collected big data are normally high dimensional, redundant and noisy, and many beyond the processing capacity of the computer systems. Our second ongoing research is focused on the Data-as-a-Service framework, which includes data representation, dimensionality reduction, incremental and distributed processing (securely on cloud), deep learning, clustering, prediction and proactive services, aiming at representing and processing big data generated from CPSS, providing more valued smart services for human and refining the previously designed CPSS. This talk will present corresponding case studies in some applications to demonstrate the feasibility and flexibility of the proposed system design methodology and analytic framework.

Biography: Laurence T. Yang got his BE in Computer Science and Technology and BSc in Applied Physics both from Tsinghua University, China and Ph.D in Computer Science from University of Victoria, Canada. He is a professor at St. Francis Xavier University, Canada. His research includes parallel and distributed computing, embedded and ubiquitous/pervasive computing, and big data. He has published around 360 international journal papers in the above areas, of which half on top IEEE/ACM Transactions and Journals, others mainly on Elsevier, Springer and Wiley Journals.

He has been involved actively as a steering chair for 10+ IEEE international conferences. He served as the vice-chair of IEEE CS Technical Committee of Supercomputing Applications (2001-2004), the chair of IEEE CS Technical Committee of Scalable Computing (2008-2011). He was the vice-chair (2014) and the chair (2015) of IEEE Canada Atlantic Section. Now he is the chair of IEEE CS Technical Committee of Scalable Computing (2018-), the co-chair of IEEE SMC Technical Committee on Cybermatics (2016-) and the vice-chair of IEEE CIS Technical Committee on Smart World (2016-). In addition, now he is serving as an editor for many international journals (such as IEEE Systems Journal, IEEE Access, Information Sciences (Elsevier), Information Fusion (Elsevier), Big Data Research (Elsevier), etc). He has been acting as an author/co-author or an editor/co-editor of 25 books from well-known publishers. He has been invited to give around 35 keynote talks at various international conferences and symposia.

His recent honours and awards include IEEE TCCPS Distinguished Leadership Award on Cyber-Physical Systems (2018), IEEE SCSTC Life-Career Achievement Award on Smart Computing (2018), Fellow of Canadian Academy of Engineering (2017), IEEE System Journal Best Paper Award (2017), IEEE TCSC Award for Excellence in Scalable Computing (2017), and the PROSE Award on Engineering and Technology (2010).

Day 3   14ᵗʰ August 10:30-12:00   Room: Apollon-Athina Hall

The IEEE 2018 CyberSciTech/DASC/PICom/DataCom Join Panel on

The Future of Cybermatics: AI and Blockchain Empowered Cyberization

Titania Hotel, Athens, Greece, August 14, 2018

Cybermatics is a holistic field for the systematic study of cyber entities and cyber-enabled worlds. Cyberization is the process for conjugations of cyber entities with entities in conventional worlds with a suite of Cyber sciences including theories/technologies/engineering. Cyber entities and Cyber-enabled worlds are forming and expanding into new fields named Cyber-X such as Cyber-Physical, Cyber-Social, Cyber-Mental, etc., which can be envisioned as an essential future discipline. AI and Blockchain are two of the recent technology trends that are catalyzing the pace of innovation and introducing radical shifts in everyday life and every industry. Due to their two sided effectiveness as "angel" and "devil", how the joint use of the two will have impacts on Cyber-X fields? Will they be two major technologies and driven force for Cybermatics? How to govern and evolve a Cyber Ecosystem? This panel aims at providing an academic roundtable for scholars to brain storming, exchange new ideas and innovative technologies, and even undertake joint research studies. The topics include but not limited to

(1) Fundamental Problems of Cyber Sciences
(2) Emerging and Promising Cyber Technologies
(3) Disruptive Cyber-Enabled Applications
(4) Governance and evolutionary of the Cyber Ecosystem

Moderators

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

Panelists

Vincenzo Piuri, University of Milan, Italy
Frank Hsu, Fordham University, USA
Qun Jin, Waseda University, Japan
Yanchun Zhang, Victoria University, Australia
Valerio Pascucci, University of Utah, USA
Paulo Pires, Federal University of Rio de Janeiro, Brazil

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

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

Anna Kobusińska, Poznan University of Technology, Poland

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

1. **Secured Architecture for Unmanned Surface Vehicle Fleets Management and Control**, Pedro Merino Laso; David Brosset; Marie-Annick Giraud

2. **Ensemble of Semi-Supervised Models for IoT Resource Scheduling and Sharing**, Tony Jan

3. **The Implementation of CNN-based Object Detector on ARM Embedded Platforms**, Yingjie Zhang; Sheng Bi; Min Dong; Yunda Liu

4. **Key Frame Extraction of Skeleton Joint Based on Kinect Sensor**, Cheche Xie; Sheng Bi; Min Dong

5. **The Cyber Sensor Network**, Michael O'Grady; Olga Murdoch; Dominic Carr; Rem Collier; Gregory O'Hare

6. **Channel-Aware MAC Protocol for Cognitive Radio Sensor Networks**, Sangman Moh; Subash Luitel

7. **Applications of Anomaly Detection Using Deep Learning on Time Series Data**, Van Quan Nguyen, Linh Van Ma, Jin-young Kim, Kwangki Kim, Jinsul Kim

8. **Identifying Ad Libraries by Their Network Behavior Patterns**, Ming-Yang Su; Hong-Siou Wei; Xin-Yu Chen; Po-Wei Lin; Ding-You Qiu

9. **MSRR: Measurement Framework For Remote Attestation**, Jason Gevargizian; Prasad Kulkarni

10. **Joint Power Control and Channel Assignment for Green Device-to-Device Communication**, Chih-Shun Hsu; Wei-Chen Chen

11. **Decision Boundary Formation of Deep Convolution Networks with ReLU**, Chulhee Lee; Woo Seongyoun

Day 2   Tuesday, 13th August 2018   Room: Omiros

13:00-15:20 DASC Session 1: Dependable Computing

Chair: TBA

1. **SocialBotHunter: Botnet Detection in Twitter-like Social Networking Services Using Semi-Supervised Collective Classification**, Ali Dorri; Mahdi Abadi; Mahila Dadfarnia

2. **A Privacy Negotiation Mechanism for IoT**, Khaled Alanezi; Shivakant Mishra

3. **Analyzing cross-platform Attacks: Towards a Three-actor Approach**, Antonio Acien; Ana Nieto; Javier Lopez

4. **Distributed Denial of Service Attack Prevention at Source Machines**, Masanori Misono; Kaito Yoshida; Juho Hwang; Takahiro Shinagawa

5. **Validation of the Proposed Fault Injection, Test and Hardness Analysis for Combinational Data-flow Verilog HDL Designs under the RASP-FIT Tool**, Abdul Rafay Khatri; Ali Hayek; Josef Boercsoek

6. **A Dynamic App Anti-Debugging Approach on Android ART Runtime**, Jia Wan; Mohammad Zulkernine; Clifford Liem

7. **Hardware Performance Counters for Embedded Software Anomaly Detection**, Karl Ott; Rabi Mahapatra

15:40 – 18:20 DASC Session 2: Reliable Computing

Chair: TBA

1. **Soft Error Characterization on Scientific Applications**, Zuhal Ozturk; Haluk R Topcuoglu; Sanem Arslan; Mahmut Taylan Kandemir

2. **On Increasing Dependability of Web Services — an Approach to Design a Failure Detection Service**, Jacek Kobusinski; Jerzy Brzeziński; Anna Kobusińska

3. **Securing Web Applications with Secure Coding Practices and Integrity Verification**, Shahrear Iqbal; Mohammad Zulkernine; Arafa Anis; Catherine Chambers; Clifford Liem

4. **Accelerating Event Processing for Security Analytics on a Distributed In-Memory Platform**, David Jaeger; Feng Cheng; Christoph Meinel

5. **Context Awareness for Improved Continuous Face Authentication on Mobile Devices**, Max Smith-Creasey; Fatema Albalooshi; Muttukrishnan Rajarajan

6. **Dynamic Memory Protection via Intel SGX-Supported Heap Allocation**, Mingbo Zhang; Luis Garcia; Pengfei Sun; Xiruo Liu; Saman Zonouz

7. **Implementation Efficiency and Alternations, regarding CAESAR Finalists & AEGIS Cipher**, Maria Katsaiti; Nicolas Sklavos

8. **Privacy Preserving Random Decision Tree Classification over Horizontal and Vertical Partitioned Data**, Mina Sheikhalishahi; Fabio Martinelli; Fatemeh Khodaparast; Hassan Haghighi

Day 2   Tuesday, 13th August 2018   Room: Socrates

13:00-15:20 PICom Session 1

Chair: Xiaomao Fan

1. **Edge-based Energy Management for Smart Homes**, Chunqiu Xia; Wei Li; Xiaomin Chang; Flavia Coimbra Delicato; Ting Yang; Albert Zomaya

2. **Wale: a Dockerfile-based Approach to Deduplicate Shared Libraries in Docker Containers**, Federico Fausto Santoro; Corrado Santoro; Fabrizio Messina; Fabio D'Urso

3. **Cost Efficient Edge Intelligence Framework Using Docker Containers**, Mabrook AL-Rakhami; Mohammed Alsahli; Mohammad Mehedi Hassan; Atif Alamri; Antonio Guerrieri; Giancarlo Fortino

4. **Time-Incremental Convolutional Neural Network for Arrhythmia Detection in Varied-length Electrocardiogram**, Qihang Yao; Xiaomao Fan; Yunpeng Cai; Ruxing Wang; Liyan Yin; Ye Li

5. **FTSGD: An Adaptive Stochastic Gradient Descent Algorithm for Spark MLlib**, Hong Zhang; Zixia Liu; Hai Huang; Liqiang Wang

6. **DRAW: Data Replication for Enhanced Data Availability in IoT-based Sensor Systems**, Waleed Bin Qaim; Oznur Ozkasap

7. **C-SAK: Chinese Scanning Ambiguous Keyboard for Parkinson's Disease Patients**, Farzana Jabeen; Linmi Tao; Xinyue Wang; Shanshan Mei

15:40 – 18:20 PICom Session 2

Chair: Giancarlo Fortino

1. **A Pilot Study Mapping Citizens' Interaction with Urban Nature**, Enrico Ferrara; Antonio Liotta; Laura Erhan; Maryleen Ndubuaku; Daniel D Giusto; Miles Richardson; David Sheffield; Kirsten McEwan

2. **Multilevel Observability in Cloud Orchestration**, Rodolfo Picoreti; Alexandre do Carmo; Felippe Queiroz; Anilton Salles Garcia; Raquel F Vassallo; Dimitra Simeonidou

3. **Cooperative Caching Plan of Popular Videos for Mobile Users by Grouping Preferences**, Yi-Ting Chen; Chia-Cheng Yen; Yu-Tai Lin; Jia-Shung Wang

4. **A Dual Sampling Cooperative Communication Method for Energy and Delay Reduction**, Fenyu Jiang; Yan Sun; Chris Phillips

5. **Density Based Multisensor Data Fusion for Multiapplication Wireless Sensor Networks**, Claudio M. Farias; Luci Pirmez; Flavia Coimbra Delicato

6. **Effective Routing Algorithm Based on Software Defined Networking for Big Data Applications in Data Centre Network**, Ali Khaleel; Hamed Saffa Al-Raweshidy

7. **Signal2vec: Representation of Time Series in Vector Space**, Chrstoforos Nalmpantis; Dimitris Vrakas

8. **Pervasive 3D Reconstruction to Identify Hidden 3D Survival Spaces for Search and Rescue Management**, Panagiotis Mysiris; Nikolaos D. Doulamis; Anastasios D Doulamis; Vasilis Sourlas; Angelos Amditis

Day 2   Tuesday, 13th August 2018   Room: Platon

13:00 – 15:20 CyberSciTech Session 1: Cyber Physical Computing & Systems

Chair: Kevin I-Kai Wang

1. **ID Hopping CAN Controller Design with Obfuscated Priority Assignment**, Shan Ding; Tong Zhao; Ryo Kurachi; Gang Zeng

2. **The Model Experimental Evaluation of the Cardiovascular Interventional Surgery Robot System**, Fulong Chen; Hao Shen; Cheng Wang; Le Xie; Shoujun Zhou; Hesheng Wang

3. **SMELs: A Data-driven Middleware for Smart Miscellaneous Electrical Load Management in Buildings**, Balaji Kalluri Mallikarjuna; Andreas Kamilaris; Sekhar Kondepudi; Kua Harn Wei; Kwok Wai Tham

4. **Augmented Reality Registration Method Based on Improved LMeds**, Yangping Wang

5. **HyTube: A Novel Middleware Layer for Smart Building Systems**, Chunhua Chen; Junwei Yan

6. **Target Detection Based on Cascade Network and Densely Connected Network in Remote Sensing Image**,   Jihao Wang; Yangping Wang

7. **Smart Crib Control System Based on Sentiment Analysis**, Ying Liu; Dequan Zheng; Tongmao Lin; Xianqi Liu; Deshuai Wang; Frank Hopfgartne

15:40 – 18:20 CyberSciTech Session 2: Cyberspace & Cyber Security

Chair: Kaitai Liang

1. **Anomaly Detection from Big Data System Logs Using Convolutional Neural Network**, Siyang Lu; Liqiang Wang

2. **An Attribute-based Searchable Encryption Scheme Supporting Trapdoor Updating**, Jingjing Xu; Chun Ying; Zhe Sun; Shuhua Tan; Pan Wang; Zhixin Sun

3. **A Study on Quantitative Risk Assessment Methods in Security Design for Industrial Control Systems**, Yasuyuki Kawanishi; Hideaki Nishihara; Daisuke Souma; Hirotaka Yoshida; Yoichi Hata

4. **USB SPY: A Stratagem for Tracing USB Storage Devices**, Pratiksha Dwivedi; Varsha Sharma

5. **A Security Framework for ICN Traffic Management**, Eslam G. AbdAllah; Mohammad Zulkernine; Hossam S. Hassanein

6. **ARP-CP-ABE: Toward Efficient, Secure and Flexible Access Control for Personal Health Record Systems**, Guofeng Lin; Yunhao Xia; Chun Ying; Shuhua Tan; Zhixin Sun

7. **Using Digital Tokens to Improve Amortized Performance of eSign**, Puneet Bakshi; Subramanian Neelakandan, Sukumar Nandi

8. [WiP] **Contract Based Energy Blockchain for Secure Electric Vehicles Charging in Smart Community**, Yuntao Wang; Zhou Su; Qichao Xu; Ning Zhang

9. [WiP] **A Malware Analysis and Artifact Capture Tool**, Dallas Wright; Joshua Stroschein

Day 2　　Tuesday, 13th August 2018　　Room: Solon

13:00-15:20 DataCom Session 1: Analytics Theorem, Systems and Tools

Chair: TBA

1. **Enabling Proactive Data Protection in ZFS To Build Reliable Big Data Storage Systems**, Zhi Qiao; Jacob Hochstetler; Shuwen Liang; Song Fu; Hsing-bung HB Chen; Bradley Settlemyer

2. **Predication of NCAA Bracket using Recurrent Neural Network and Combinatorial Fusion**, Yuhan Hao; Bruce Kristal; Frank Hsu

3. **Performance Modeling and Evaluation of Distributed Deep Learning Frameworks on GPUs**, Shaohuai Shi; Xiaowen Chu

4. **Classifying Solid State Drive Firmware Via Side-Channel Current Draw Analysis**, Zachary Johnson; Alex Varon; Justin Blanco; Ryan Rakvic; James Shey; Hau Ngo; Dane Brown; Owens Walker

5. **MER-SDN: Machine Learning Framework for Traffic Aware Energy Efficient Routing in SDN**, Beakal Gizachew Assefa; Oznur Ozkasap

6. **Network Traffic Identification with Convolutional Neural Networks**, Akshit Jain

7. **UNS: A Portable, Mobile, and Exchangeable Namespace for Supporting Fetch-From-Anywhere Big Data Eco-Systems**, Hsing-bung HB Chen; Song Fu

15:40 – 18:20 DataCom Session 2: Big Data Intelligence and Applications

Chair: TBA

1. **Efficient and Fair Item Coverage in Recommender Systems**, Iordanis Koutsopoulos; Maria Halkidi

2. **Densely Labeling Large-Scale Satellite Images with Generative Adversarial Networks**, Yupeng Yan; Xiaohui Huang; Anand Rangarajan; Sanjay Ranka

3. **Real-Time Traffic Estimation of Unmonitored Roads**, Paolo Nesi

4. **Activation Server for Bidirectional Limited Usages of Digital Objects**, Ryo Ogitani; Kunitake Kaneko

5. **Supervised Papers Classification on Large-Scale High-Dimensional Data with Apache Spark**, Leonidas Akritidis; Panayiotis Bozanis; Athanasios Fevgas

6. **Tracking Supply Chain Process Variability with Unsupervised Cluster Traversal**, Teng Yung Lin; Hao Chun Chuang; Fang Yu

7. **Countering Real-Time Stream Poisoning: An Architecture for Detecting Vessel Spoofing in Streams of AIS Data**, Ioannis Kontopoulos; Giannis Spiliopoulos; Dimitrios Zissis; Konstantinos Chatzikokolakis; Alexander Artikis

13:00 – 15:20 DASC Session 3: Secure Distributed and Cloud Systems

Chair: TBA

1. **A System Architecture for Cloud of Sensors**, Igor L Dos Santos; Marcelo P. Alves; Flávia Coimbra Delicato; Paulo F. Pires; Luci Pirmez; Wei Li; Samee U. Khan; Albert Zomaya

2. **Exploring Problems with Virtualization in Cloud Computing**, Edren Dacaymat; Jun Zhang; Qi A. Wang; Thaier Hayajneh; Md Zakirul Alam Bhuiyan

3. **Enhancing Hadoop System Dependability Through Autonomous Snapshot**, Tsozen Yeh

4. **Porting the Pip Proto-kernel's Model to Multi-core Environments**, Quentin Bergougnoux; Gilles Grimaud; Julien Iguchi-Cartigny

5. **A Forensic System for Identifying the Suspects of a Crime with No Solid Material Evidences**, Kamal Taha; Paul Yoo

6. **Parallelizing Louvain Algorithm: Distributed Memory Challenges**, Shaikh Arifuzzaman; Naw Safrin Sattar

7. [WiP] **A Novel Blockchain-based Trust Model for Cloud Identity Management**, Keltoum Bendiab; Nicholas Kolokotronis; Stavros Shiaeles; Samia Boucherkha

15.40 – 18.20 DASC Session 4: Dependable Networks, IoT and Mobile Computing

Chair: TBA

1. **Performance Evaluation of History-based and Priority-based MAC for Traffic-Differentiated Intra-Vehicular Network**, Ibnu Febry Kurniawan; Md Arafatur Rahman; A. Taufiq Asyhari; Md Zakirul Alam Bhuiyan

2. **Deep Learning with Non-Parametric Regression Model for Traffic Flow Prediction**, Muhammad Arif; Guojun Wang; Shuhong Che

3. **Android Malware Detection Using Feature Fusion and Artificial Data**, Raja Khurram Shahzad

4. **Wi-Fi Halow Signal Coverage Estimation in Collapsed Structures**, Muhammad Faizan Khan; Guojun Wang; Md. Zakirul Alam Bhuiyan; Tao Peng

5. **A Reliable and Low Cost Vehicle Localization Approach Using Interval Analysis**, Zhan Wang; Alain Lambert

6. **Capture the RAT: Proximity-based Attacks in 5G Using the Routine Activity Theory**, Ana Nieto; Antonio Acien; Javier Lopez

7. **Abnormal-node Detection Based on Spatio-temporal and Multivariate-attribute Correlation in Wireless Sensor Networks**, Nesrine Berjab; Hieu Hanh Le; Chia-Mu Yu; Sy-Yen Kuo; Haruo Yokota

8. **Android Hooking Revisited**, Nikolaos Totosis; Constantinos Patsakis

Day 3   Wednesday, 14th August 2018   Room: Socrates

13:00 – 15:20 CyberSciTech Session 3: Cyber Social Computing & Networks

Chair: Xiaokang Zhou

1. **The Team Brain: Soccer Analysis and Battles of Minds**, Massimo Marchiori
2. **ICFR: An Effective Incremental Collaborative Filtering Based Recommendation Architecture for Personalized Websites**, Ruifang Zhang; Tao Xu; Kehua Guo; Jianhua Ma
3. **The Influence Maximization Problem in the Network under Node Personalized Characteristics**, Weimin Li; Jun Mo; Yue Liu; Nobuyasu Ito; Yohsuke Murase; Jianwei Liu
4. **Twitter Influencers or Cheated Buyers?**, Savvas Zenonos; Nicolas Tsapatsoulis
5. **Specifying Latent Factors with a Domain Model for Personal Data Analysis**, Kiichi Tago; Kosuke Takagi; Kenichi Ito; Qun Jin
6. **Fake News Detection Enhancement with Data Imputation**, Chandra Mouli Madhav Kotteti; Xishuang Dong; Na Li; Lijun Qian
7. **Anomaly Prediction in Passenger Flow with Knowledge Transfer Method**, Zhipu Xie; Weifeng Lv; Syed Muhammad Asim Ali Rizvi; Bowen Du; Runhe Huang

15:40 – 18:20 CyberSciTech Session 5: Cyber Intelligence, Life & Mind 2

Chair: Fuhua Lin

1. **Stencil Imaging and Defects Detection Using Artificial Neural Networks**, Xiaojun Yin; Kecheng Yang; Qi Zhang; Xiaohui Zhang
2. **Hidden Markov Model for Masquerade Detection Based on Sequence Alignment**, Wei Qiu; Andy W. H. Khong; Wee Peng Tay
3. **Road Extraction from High-resolution Remotely Sensed Image Based on Improved Ant Colony Optimization Method**, Yangping Wang
4. **Multi Scale Trajectory Data Management and Query**, Lai Tu; Jing Wen; Benxiong Huang; Dan Tan
5. **Hunting Algorithm Visualization and Performance Evaluation Through BDI Agent Simulation**, Fuhua Lin; Marc Prince
6. **Table Analysis and Information Extraction for Medical Laboratory Reports**, Wenyuan Xue; Qingyong Li
7. **DYCUSBoost: Adaboost-based Imbalanced Learning Using Dynamic Clustering and Undersampling**, Lingchi Chen; Xiaoheng Deng; Hailan Shen; Le Chang; Congxu Zhu
8. **Product Surface Defect Detection Based on Deep Learning**, Po Chun Lien

Day 3　　　Wednesday, 14th August 2018　　　Room: Platon

13:00 – 15:20 CyberSciTech Session 4: Cyber Intelligence, Life & Mind 1

Chair: Runhe Huang

1. **Interpretable Neural Network Using Decision Tree**, Tsukasa Ueno; Zhao Qiangfu

2. **Incremental User Modeling of Online Activity for Cyber-I Growth with Successive Browsing Logs**, Yen Tsan; Ao Guo; Jianhua Ma; Runhe Huang; Zhong Chen

3. **Speech Emotion Recognition Using Cross-Correlation and Acoustic Features**, Joyjit Chatterjee; Vajja Mukesh; Hui-Huang Hsu; Garima Vyas; Zhen Liu

4. **From User Models to the Cyber-I Model: Approaches**, Progresses and Issues, Ao Guo; Jianhua Ma; Kevin I-Kai Wang

5. **An Automated Evaluation System for App Inventor Apps**, Yue Li; Yiqing Pan; Wensheng Liu; Xingming Zhang

6. **Correlation Analyses Between Personality Traits and Personal Behaviors Under Specific Emotion States Using Physiological Data from Wearable Devices**, Ruiying Cai; Ao Guo; Jianhua Ma; Ruiyun Yu; Runhe Huang; Chen Yang

7. **Application of Fuzzy Analogy Preferred Ratio based on Euclid Distance in Quantitative Decision of Turfgrass Introduction**, Linjing Wei

15:40 – 18:20 CyberSciTech Session 6: Cyberspace & Cyber Security II

Chair: Hao Wang

1. **Feature Selection for Machine Learning-based Early Detection of Distributed Cyber-Attacks**, Yaokai Feng

2. **A Fuzzy IBE Scheme with Attribute Timeliness**, Shuting Zuo, Meiling Zhang, Chen Yang, Xin Wang

3. **Fraud Risk Monitoring System for E-Banking Transactions**, Chaonian Guo; Hao Wang; Hong-Ning Dai; Shuhan Cheng; Tongsen Wang

4. **OwlEye: An Advanced Detection System of Web Attacks Based on HMM**, Xin Liu; Qingcheng Yu; Xiaokang Zhou; Qingguo Zhou

5. **A Hierarchical Approach to Encrypted Data Packet Classification in Smart Home Gateways**, Xuejiao Chen; Jiahui Yu; Feng Ye; Pan Wang; Zhixin Sun

6. **A Blockchain-based Risk and Information System Control Framework**, Shenglan Ma; Hao Wang; Hong-Ning Dai; Shuhan Cheng; Ruihua Yi; Tongsen Wang

7. **Acquisition and Analysis of Forensic Data Artefacts of Some Popular Apps in Android Smartphone**, Nishchol Mishra; Yamini Konduru

8. [WiP] **Toward Mitigation-as-a-Service in Cooperative Network Defenses**, Stephan Mannhart; Bruno Rodrigues; Eder Scheid; Salil S Kanhere; Burkhard Stiller

9. [WiP] **User Verification Based on Customized Sentence Reading**, Luqi Yang; Zhiwei Zhao; Geyong Min

Day 3   Wednesday, 14ᵗʰ August 2018   Room: Solon

13:00 – 15:20 DataCom Session 3: Secure Distributed and Cloud Systems

Chair: TBA

1. [R] **Foundational Issues on Big Data Science and Engineering**, Alaa Alsaig; Vangalur Alagar; Olga Ormandjieva

2. [R] **Substituting Missing Values in End-to-end Internet Performance Measurements using k-Nearest Neighbors**, Saqib Ali; Guojun Wang; Xiaofei Xing; Les Cottrell

3. [R] **The Battle for Information: exposing Wikipedia**, Massimo Marchiori

4. [WiP] **Towards a two Layers based Scheduling Schema for Data Aware Strategies**, Christophe Cerin; Tarek Menouer; Walid Saad; Souha Bejaoui

5. [WiP] **Using Sentiment Analysis to Determine Users' Likes on Twitter**, Yo-Ping Huang; Nontobeko Hlongwane; Li-Jen Kao

6. [WiP] **Air pollution forecasting using RNN with LSTM**, Yi-Ting Tsai; Yu-Ren Zeng; Yue-Shan Chang

7. [WiP] **Parallel Study of 3-D Oil Reservoir Data Visualization Tool Using Hybrid Distributed/Shared-Memory Models**, Hanan Khaled; Ali A. ElMoursy; Salwa Nassar; Mohamed Taher; Fadi Sibai

15.40 – 18.20 Workshop on Healthcare with Intelligent Sensing, System, and Data (HISSD)

Chair: Wasim Ahmad

1. **Activity Classification Using Raw Range and I & Q Radar Data with Long Short Term Memory Layers**, Charalampos Loukas; Francesco Fioranelli; Julien Le Kernec; Shufan Yang

2. **A New Method for Facial and Corporal Expression Recognition**, Kahina Amara; Naeem Ramzan; Achour Nouara; Mahmoud Belhocine; Cherif Larbes; Nadia Zenati

3. **IoT Driven Ambient Intelligence Architecture for Indoor Intelligent Mobility**, Varuna De Silva; Jamie Roche; Xiyu Shi; Ahmet Kondoz

4. **Design and Evaluation of Vivado HLS-Based Compressive Sensing for ECG Signal Analysis**, Ousssama Kerdjidj; Naeem Ramzan; Abbes Amira; Khalida Ghanem; Fatima Chouireb

5. **Fog-supported Internet of Things (IoTs) Architecture for Remote Patient Monitoring Systems Using Wireless Body Area Sensor Networks**, Rao Naveed Bin Rais; Muhammad Sajjad Akbar; Mohammad Aazam

6. **Opportunistic Doppler-only Indoor localization via Passive Radar**, Wenda Li; Bo Tan; Robert J Piechocki

7. **Unifying and Analysing Activities of Daily Living in Extra Care Homes**, Alexandros Konios; Yanguo Jing; Mark Eastwood; Bo Tan

10:10 – 12:30 DASC/PICom WiP Paper Session

Chair: Claudio Miceli

1. [DASC] **Collecting and Analyzing Digital Proof Material to Detect Cybercrimes**, Abdulghani Ali Ahmed; Yee Wai Kit

2. [DASC] **Threat Analysis of Software Agents in Online Banking and Payments**, Tamsanqa Ngalo; Hannan Xiao; Bruce Christianson; Ying Zhang

3. [DASC] **A New Static-based Framework for Ransomware Detection**, May Medhat; Samir G. Sayed; Nashwa Abdelbaki

4. [DASC] **Are Cracked Applications Really Free? An Empirical Analysis on Android Devices**, Konstantinos-Panagiotis Grammatikakis; Angela Ioannou; Stavros Shiaeles; Nicholas Kolokotronis

5. [DASC] **Floating XY-YX: An Efficient Thermal Management Routing Algorithm for 3D NoCs**, Maede Safari; Zahra Shirmohammadi; Nezam Rohbani; Hamed Farbeh

6. [PICom] **Incentive Allocation to Sequential Decision-Making Sensors in Mobile Crowdsensing**, Iordanis Koutsopoulos

7. [PICom] **SDM-based Means of Gradient for Eye Center Localization**, Hui Yu; Yifan Xia; Jianwen Lou; Junyu Dong; Gongfa Li

8. [PICom] **Dance Posture/Steps Classification using 3D Joints from the Kinect Sensors**, Nikos Bakalos; Eftychios Protopapadakis; Anastasios D Doulamis; Nikolaos D. Doulamis

9. [PICom] **Safe Cycle: Infrastructural Control for Bikers**, Massimo Marchiori

10:10 – 12:30 CyberSciTech WiP Paper Session

Chair: Hui-Huang Hsu

1. **The Controller Placement of Software-Defined Networks based on Minimum Delay and Load Balancing**, Peiying Tao; Chun Ying; Zhe Sun; Shuhua Tan; Pan Wang; Sun Zhixin

2. **CPS: A Community Priority based Vaccine Distribution Strategy in Different Networks**, Mengjin Jiang; Yizhi Ren; Ye Yao; Lifeng Yuan; Ting Wu; Zhen Wang

3. **Efficient File-share Reconstruction Scheme for Device Addition/Removal in Personal Area Network**, Jung-Eun Park; Young-Hoon Park

4. **Improved Fast-ICA for Change Detection of Multi Temporal Remote Sensing Images**, Yangping Wang

5. **Identifying Niche Singers in Online Streaming Services**, Chih-Chieh Hung; Chun-Yu Kuo; Hui-Huang Hsu; Yian Chen

6. **A Community Detecting Algorithm Based on Modular Tensor in Temporal Network**, Dan Jin; Yu Wu; Guanghui Yan; Yafei Wang; Qingqing Ma; Juncheng Li

7. **Identifying Niche Singers in Online Streaming Services**, Chih-Chieh Hung; Chun-Yu Kuo; Hui-Huang Hsu; Yian Chen

8. **Design of an AI-Empowered Recommender System for Travelling Support: Individual Traveler as an Instance**, Lai KuanHua; Neil Y. Yen; Mu-Yen Chen

9. **Research on Dynamic Multi-objective FJSP Problem Based on Genetic Algorithm**, Li Bi

10:10 – 12:30 CSC&CEA/Cyber-IoT/EDCSTA

Special Session on Cyber Social Computing and Cyber-Enabled Applications
Special Session on Computing and Applications for Cyber Internet of Things
Workshop on Emerging Dependable Computing System Technologies and Apps

Chair: Bob O. Apduhan

1. [CSC&CEA] **Improved Collaborative Filtering Algorithm Based on Multifactor Fusion and User Features Clustering**, Luyan Ni; Jiulei Jiang; Xiaofeng Wang

2. [CSC&CEA] **A Novel Recommendation Algorithm Based on Social Trust**, Weimin Li; Heng Zhu; Minjun Xin; Qun Jin

3. [CSC&CEA] **Top-K Frequent Spatial-Temporal Words Query Based on R-Tree**, Shoujian Yu; Guohui Cai; Weimin Li

4. [Cyber-IoT] **Design and Implementation of the Background Management Platform of Nutrition Point Catering for the Elderly**, Lina Ma; Shu Fu; Xiangyue Yang; Xin Jian

5. [Cyber-IoT] **A Novel Solution to Improve Network Coverage and Capacity with EasyMacro**, Yu Su

6. [EDCSTA] **Boosted Probabilistic Neural Network for IoT Data Classification**, Tony Jan

7. [EDCSTA] **Relationships and Rule-based Organisational Goals Ontology: A Case of Library Goals**, Tengku Adil Tengku Izhar, Bernady O. Apduhan, Torab Torabi

8. [EDCSTA] **Opportunistic Message Broadcasting with Pheromone-based Caching**, Tomoyuki Sueda; Naohiro Hayashibara

10:10 – 12:30 DataCom WiP Paper Session

Chair: TBA

1. **LSTM Model to Forecast Time Series for EC2 Cloud Price**, Sarah Alkharif; Kyungyong Lee; Hyeokman Kim

2. **Improving Collaborative Filtering's Rating Prediction Coverage in Sparse Datasets by Exploiting User Dissimilarity**, Dionisis Margaris; Costas Vassilakis

3. **A Distributed Architecture and Design Challenges of an Astray Pilgrim Tracking System**, Mohammad Abdeen

4. **Research on SWIM Services Dynamic Migration Mechanism**, Zhijun Wu

5. **Data Driven Travel Itinerary with Branch and Bound Algorithm**, Jiaoman Du, Lei Li, Xiang Li

6. **Improving Collaborative Filtering's Rating Prediction Accuracy by Considering Users' Rating Variability**, Dionisis Margaris; Costas Vassilakis

7. **An Explicit Construction of Systematic MDS Codes with Small Sub-packetization for All-Node Repair**, Katina Kralevska; Danilo Gligoroski

8. **Policy-based Approach for Securing Message Dissemination in Mobile Ad Hoc Networks**, Samuel Eding

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