

# COMPSAC 2018

July 23-27

National Institute of Informatics, Tokyo, Japan

*Staying Smarter in a Smartening World*

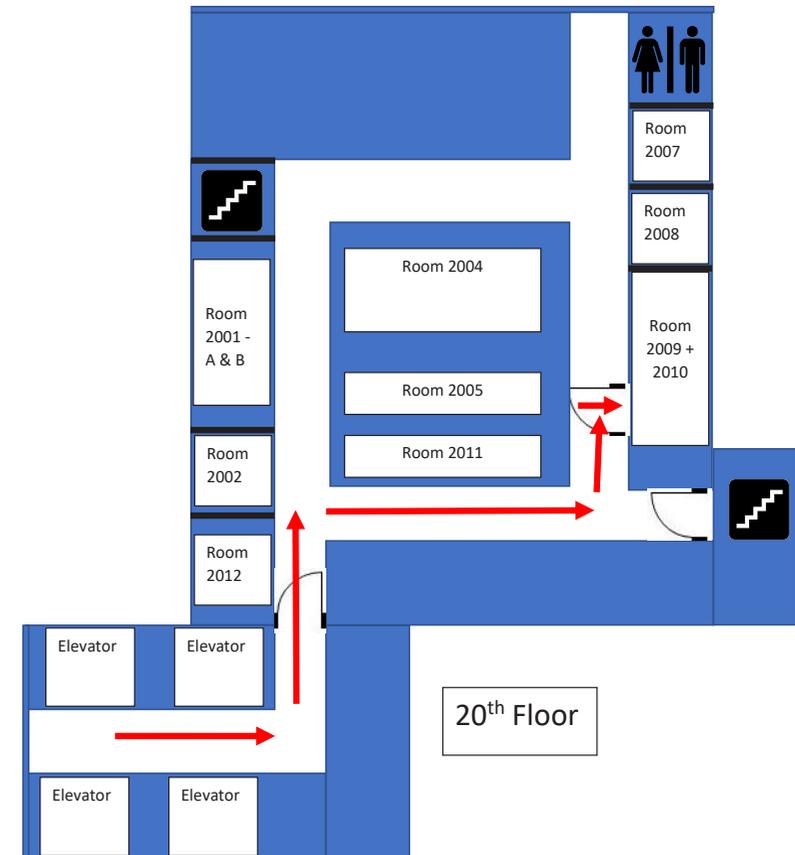
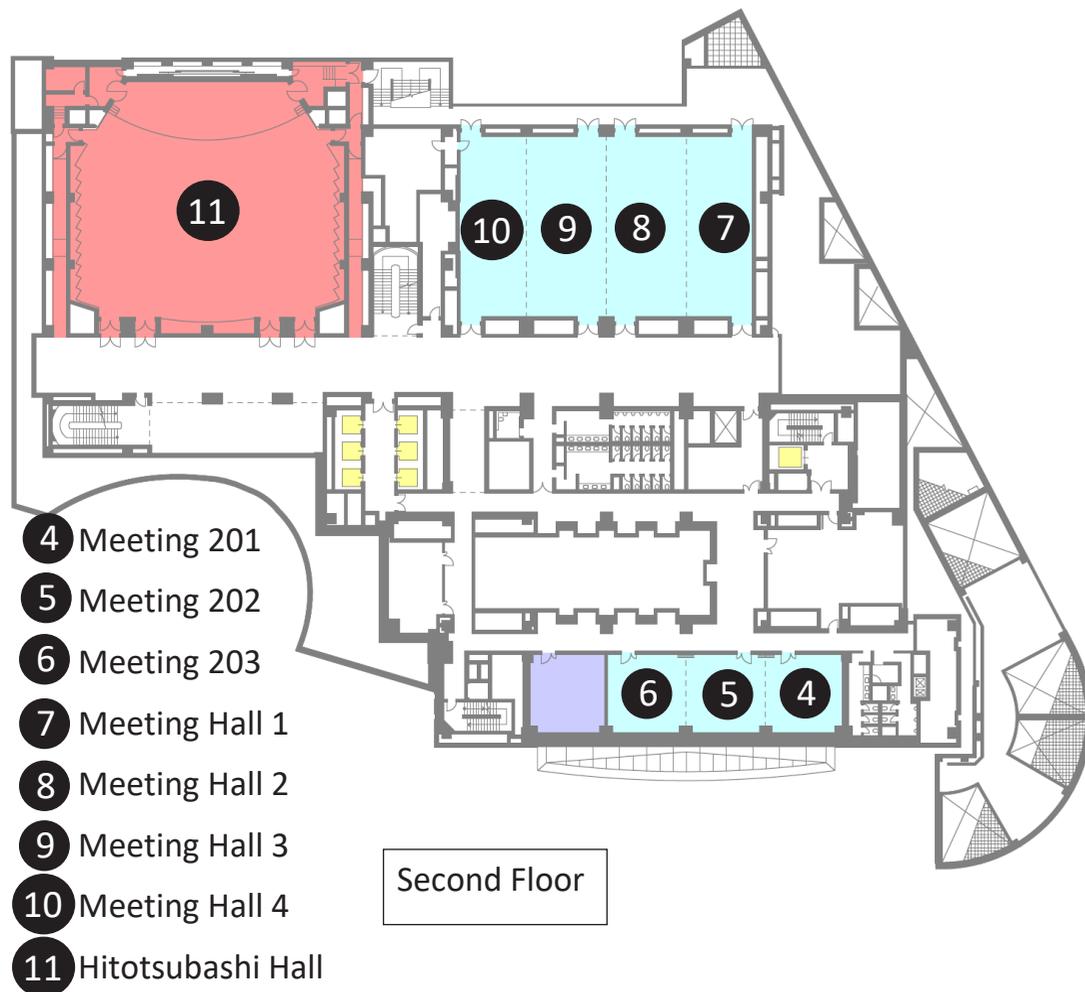
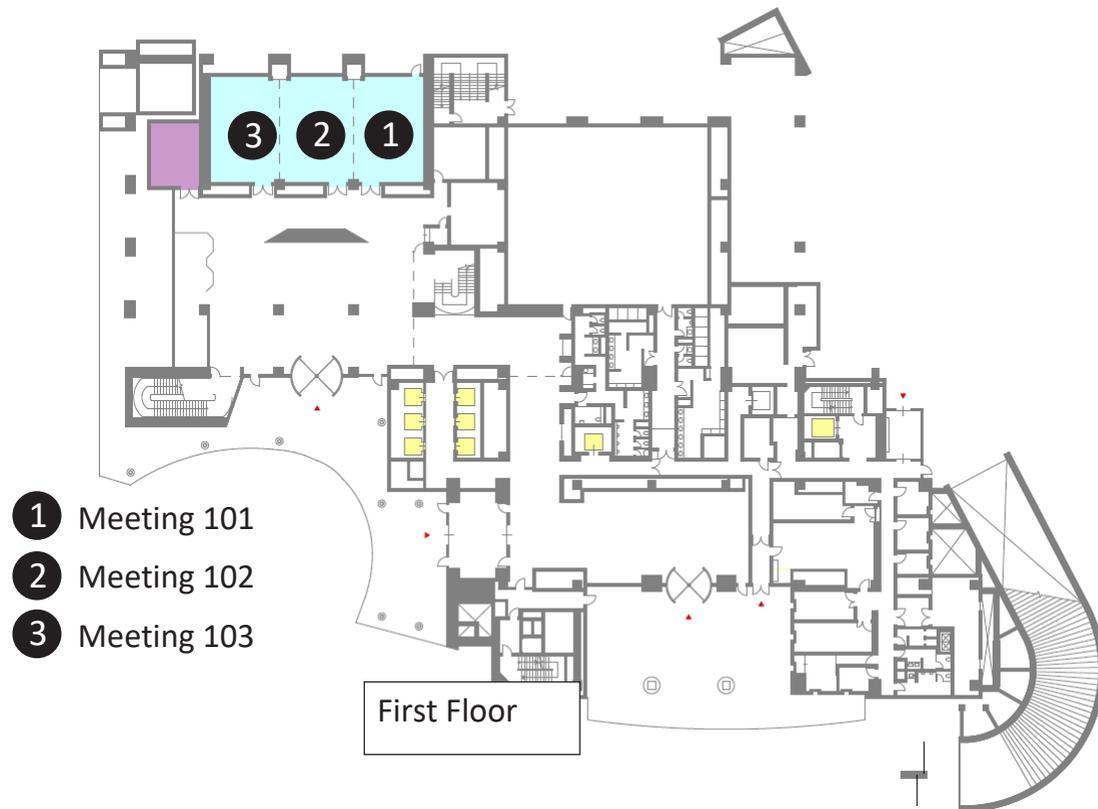
Conference Program



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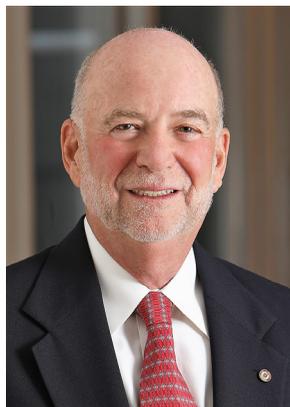
**COMPSAC 2018  
 Mobile App**

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<https://itunes.apple.com/us/app/conference-publishing-services/id1057968328?mt=8>  
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Web Versions:  
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 password: compsoc18

Please fill out the conference survey on the COMPSAC Conference App and let us know about your experience at COMPSAC 2018!



**Message from Sorel Reisman  
COMPSAC Standing Committee Chair**

On behalf of myself and the volunteer organizers of COMPSAC I'd like to welcome you all to Tokyo and to COMPSAC 2018. As many of you know, COMPSAC, the signature conference of the IEEE Computer Society, annually moves from Asia, to North America, to Europe, and back. We are delighted this year to be in Japan, and are thankful to Waseda University and the National Institute of Informatics (NII) for hosting this year's conference. We are fortunate to have Masaru Kitsuregawa, Director General, of NII welcoming us as one of our three keynote speakers.

I'm sure, when this year's Local Chairs, Hironori Washizaki (Waseda University) and Nobukazu Yoshioka (NII) volunteered to host the conference, they didn't dream of the all the responsibilities and work for which they were signing up. We appreciate all they have done to help bring COMPSAC to Tokyo. Another person deserving of our appreciation is my friend Hironori Kasahara from Waseda University, also the 2018 Computer Society president who has been incredibly helpful providing countless resources for this year's conference. These folks, and our colleagues from the Information Processing Society of Japan, under the leadership of Professor Shojiro Nishio, IPSJ President, have been instrumental in helping to organize this year's conference. In fact, one of COMPSAC's four hardworking Program Chairs-in-Chief, Yasuo Okabe (Kyoto University) was recently elected a vice president of IPSJ.

Although "COMPSAC" originally was an acronym standing for Computer Software and Applications Conference, a few years back we changed the name to Computers, Software and Application Conference, thereby allowing us to broaden the scope to include more than just software and applications, notably, to also focus on hardware. In the last couple of years, issues related to Moore's Law and beyond, have become an additional sub theme of the conference.

This year's main theme, Staying Smarter in a Smartening World and our focus on new technologies and applications and their enabling hardware and software technologies reflect COMPSAC's name change. The addition and increase in the number of papers and special sessions on AI and Machine Learning provide attendees with unique windows on the future of all aspects of computing – a perspective that COMPSAC uniquely provides to conference attendees. These windows will once again be viewable through our plenary panels, A Smarter Future led by Kathy Grise of IEEE's Future Directions Senior Technology Manager, and COMPSAC's founder, Stephen Yau's annual Future of Computing session.

In an effort to provide 'out-of-the-box' support to our presenters, this year we are continuing the J1C2 and C1J2 journal/conference publication/presentation opportunities that we started last year. We can thank Atilla Elci and Valdimir Getov for continuing to promote these programs. We expect even greater emphasis on J1C2 and C1J2 as we plan 2019. Also this year we have introduced the IEEE Open Preview program. All the papers in our program will have been available for public viewing one full month before the conference, thereby making our author/presenters' work available to a much wider audience of researchers earlier than usual.

Starting this year, our annual banquet will take on a new focus in which we will be honoring the hard work and successes of many of our member and volunteer colleagues. This year we have renamed our annual banquet to be the COMPSAC Annual Awards Banquet, and we are privileged to have

been asked by the Computer Society to present their 2018 IEEE Computer Society Technical Achievement Award to Margaret Martonosi, and the 2018 IEEE Computer Society Pioneer Award to Bjarne Stroustrup – both of whom will also serve as our other two keynote speakers. We hope that the CS will continue to ask us to include such honorees in the future.

Also this year, we will be continuing some 'trends' we started last year when we introduced our annual Young Professionals program, this year featuring a 5 different Computer Society presidents who will talk about the personal and career benefits of being a CS member and volunteer.

COMPSAC has always been a venue for CS presidents, and this year we continue that tradition with no fewer than seven CS presidents in attendance (Chang, Fujii, Kasahara, Metra, Milojicic, Yau, and yours truly). The other trend we are continuing, under the leadership of Prof. Paolo Montuschi, is the induction of the new Waseda University Eta Kappa Nu IEEE honor society chapter.

The COMPSAC volunteer community is unique in the Computer Society. As a longstanding volunteer myself, I have been singularly impressed by the size and commitment of this community. In 2018, the active COMPSAC volunteers who made the conference possible, in addition to those I specifically mention here, we need to give special thanks to our two General Chairs, four Program Chairs-in-Chief, four Workshop Chairs, two Proceeding Chairs, Publicity Chair, Social Media Chair, ten Symposia Chairs, all our Workshop Chairs. These folks' names are all listed on the website under the link labeled, COMPSAC Organizers.

Finally, in addition to all our sponsors listed on our website sponsor page, there are some individuals whose overall support of this year's conference warrants special thanks: San Murugesan, EIC Emeritus of IEEE ITProfessional Magazine, who continues to provide creative programs and ideas to assist me in continuing to evolve COMPSAC; Simanta Mitra, our Treasurer who spends countless hours managing our finances and answering my pesky questions at all hours of the day or night; Kathy Grise, a true COMPSAC friend, mentioned above; Dejan Milojicic, CS President Emeritus, volunteer keynote speaker, and my personal advisor, whether I want advice or not; Laurel Ming who, among many other things completely redesigned and rebuilt our new and infinitely improved website; Michelle Ocampo our dedicated Computer Society staff liaison who is always available to help me navigate through any irrational IEEE policy obstacle – of which there are many; and finally, my best buddy and Standing Committee Vice Chair, Sheikh Iqbal Ahamed – or just plain Iqbal to his many friends, without whom we probably couldn't really pull off this conference.



**Message from Sheikh Iqbal Ahamed  
Standing Committee Vice-Chair**

On behalf of the COMPSAC 2018 organizing team, we would like to welcome you to the 42nd Annual IEEE International Conference on Computers, Software, and Applications (COMPSAC 2018), in Tokyo, Japan, July 23-27, 2018. COMPSAC was first held in 1977 in Chicago. In the years since its founding, it has become one of the major international forums for academia, industry, and government to discuss research results, advancements and future trends in computer and software technologies and applications. The technical program includes keynote addresses, research papers, panel discussions, fast abstracts, student research symposiums, and workshops on emerging important topics. It now alternates

its meeting among sites in Asia, Europe, and North America. Over the years, its meetings have advanced the major topics in computing and software development.

The theme of COMPSAC 2018 is “Staying Smarter in a Smartening World.” Emerging developments in areas such as Deep Learning, supported by increasingly powerful and increasingly miniaturized hardware, are beginning to be deployed in architectures, systems, and applications that are redefining the relationships between humans and technology. As this happens, humans are relinquishing their roles as masters of technology to partnerships wherein autonomous, computer-driven devices become our assistants. COMPSAC will address major challenges utilizing this smart computing and technology, which in a few short years has become spread rapidly around the globe and become a key part of the world’s infrastructure. COMPSAC 2018 provides a platform for in-depth discussion of such movements and challenges. It supports discussions of general methodology for smart computing and a consideration of emerging smart applications, Smart Health devices, networked healthcare, wearable computing, internet-of-things, cyber-physical systems, smart cities, and smart planet.

COMPSAC is a premier global forum for crosscutting computing research, practice and education. In its long history with the Computer Society, COMPSAC has established a strong reputation as a meeting with high quality technical content and wide-ranging discussion of technical issues. It is also known as a well-planned, well-organized, well-attended, and well-managed event.

The COMPSAC conference program is supported by several international societies including Information Processing Society of Japan (IPSJ), Korean Institute of Information Scientist and Engineers (KIISE), and China Computer Federation (CCF), and several special technical communities such as Big Data from the IEEE Computer Society Future Directions Committee, and the Big Data Initiative. As a result, the conference will host 9 symposiums and 20 workshops, including a major workshop on Big Data and Artificial intelligence. In addition, it will present four keynote speakers and four plenary panels that will provide an international perspective on the conference theme. Finally, it will also bring together funding agency and industry representatives from across the globe to address their vision for Smart Computing - Challenges and Applications.

COMPSAC received outstanding support the local team at the National Institute of Informatics (NII), Japan and generous support from our sponsoring patrons. We would like to thank them for their contributions to the conference.

#### **Message from the General Chairs**

**Shinichi Honiden, NII, Japan**

**Roger U. Fujii, Fujii Systems, 2016 IEEE Computer Society President**

On behalf of COMPSAC 2018 organization, we welcome you to the 42nd IEEE International Computers, Software, and Applications Conference (COMPSAC 2018), held in Tokyo, Japan, July 23–27, 2018. We hope you will also take the time to enjoy the diverse landscape, numerous sights, and the excellent tourist facilities Japan has to offer.

COMPSAC is the IEEE Computer Society Signature Conference on Computers, Software, and Applications. It is a major international forum for academia, industry, and government to discuss research results and advancements, emerging problems, and future trends in computer and software technologies and applications. The technical program includes keynote addresses, research papers, industrial case studies, plenary and specialized panels, fast abstracts, a student research symposium, poster sessions, and a number of workshops on emerging and important topics in computers, software and applications. COMPSAC conference series alternates its meeting among

sites in Asia, Europe, and North America. The theme of the 42nd COMPSAC is “Staying Smarter in a Smartening World.” It is unquestionable that a smartening world must be our future. Computer technologies are producing profound changes in society. Emerging developments in areas such as Deep Learning are beginning to be deployed in architectures, systems, and applications that are redefining the relationships between humans and technology. COMPSAC 2018 will provide a forum for in-depth presentations and discussions of the relationships, technical challenges, successes, and failures.

Sessions will include topics and issues related to autonomous computing, wearable computing, the internet-of-things, social networking, cross-domain data fusion, privacy, security and surveillance, cloud computing, big data, physiological computing, self-aware and self-expressive systems, adaptive learning and teaching, and emerging architectures and network issues that affect all these developing technology-driven innovations. The COMPSAC 2018 conference offers a very rich technical program, which features research sessions for 63 high quality papers, short paper sessions for 58 short papers, all selected from over 250 submissions. In addition, it features 20 workshops with 152 papers, 28 fast abstracts, 11 student research symposium papers, 4 keynotes, and 3 plenary panels.

We would like to thank the program chairs for their dedication and effort to compose such a high quality technical program, and thank the COMPSAC Standing Committee, especially Prof. Sorel Reisman and Prof. Iqbal Ahamed, for their hard work, their dedication, and their strong support.

We trust that you will enjoy the 2018 COMPSAC technical program, the social events, and the interactions with attendees from many different regions and countries world-wide.

#### **Message from the Program Chairs**

**Jiannong Cao, Hong Kong Polytechnic University, Hong Kong**

**Stelvio Cimato, University of Milan, Italy**

**Yasuo Okabe, Kyoto University, Japan**

**Sahra Sedighsarvestani, Missouri University of Science & Technology, USA**

Welcome to COMPSAC 2018, the 42nd IEEE Computer Society International Conference on Computers, Software & Applications, in the beautiful and historical city of Tokyo, Japan. “Staying Smarter in a Smartening World” is the theme this year. Computer technologies are driving profound changes in our society and from year to year, emerging developments in different areas are redefining the relationships between humans and technology. What are the technologies enabling these changes, and what will be the social, cultural, and economic challenges arising from these developments are just some of the questions that should be addresses in the future.

COMPSAC provides an international forum for academia, industry, and government to discuss research results and advancements both in traditional and in emerging fields, such as education and learning, computer architectures, software engineering, network and web technologies, human/social communications, mobile/wearable computing, the Internet-of-things, cyber-physical systems, security and trust, data analytics, and the smart planet. COMPSAC 2018 is organized as a tightly integrated union of symposia, each of which is focused on technical aspects related to the “smart” theme of the conference. The technical program includes keynote addresses, research papers, industrial case studies, fast abstracts, a doctoral symposium, poster sessions, and workshops and tutorials on emerging and important topics related to the conference theme. Plenary and specialized panels complement the main program, addressing the technical challenges and discussing with technologists who are developing and deploying these smart systems and

applications. Panels address also cultural and societal challenges for a society whose members must continue to learn to live, work, and play in the environments the technologies produce.

We reviewed over 250 submissions this year. Using a double-blind system, each paper was reviewed by at least three Program Committee members within each symposium. Symposia Chairs then made recommendations to the entire Program Committee for which papers to accept as regular papers, short papers, or fast abstracts. After discussion at the Program Committee meeting in Beijing on March 16–17, 2018, we accepted 63 regular papers (24%), and 58 short papers. Also, 84 papers that were not accepted for the main conference were referred to COMPSAC workshops, posters, and fast abstracts, where many were accepted. We extend our heartfelt gratitude to all the authors that submitted their works this year, and to more than 400 Program Committee Members who volunteered their time and effort to peer-review each paper. Many thanks as well as to the Symposia Chairs, Program Committee members who attended the meeting in Beijing, and those who organized that event. The COMPSAC 2018 Program would not be possible without contributions of several dedicated volunteers, many serving in organizing chair roles for components such as panels, doctoral symposium, fast abstracts, posters, proceedings, finance, registration, publications, publicity, organizing, and submission systems support. The workshop chairs, Kenichi Yoshida, Chung-Horng Lung, Hong Va Leong and Ji-jiang Yang have done an excellent job coordinating 20 workshops this year. We also recognize the General Chairs, Shinichi Honiden and Roger U. Fujii, for their support and encouragement. Sheikh Iqbal Ahamed has as usual given his strong contribution, working tirelessly, supporting our efforts and keeping all our activities on track and on schedule as Standing Committee Vice Chair. Sorel Reisman has given the invaluable guidance, advice, and support as COMPSAC Advisory Committee Chair.

Please enjoy your time at the conference – discuss important topics, interact with others, make new friends, and we hope you will join us again next year for COMPSAC 2019!

#### **Message from the Workshop Chairs**

**Kenichi Yoshida, University of Tsukuba, Japan**

**Ji-Jiang Yang, Tsinghua University, China**

**Hong Va Leong, The Hong Kong Polytechnic University, Hong Kong**

**Chung Horng Lung, Carleton University, Canada**

It is our pleasure to welcome all you to the workshops of the 42nd IEEE International Computer Software and Application Conference, COMPSAC 2018, which is held in Tokyo, Japan, among the largest metropolitan areas in the world, with advanced technology in smart robotics, organized under the exciting theme of Staying Smarter in a Smartening World.

This year the COMPSAC conference includes 20 workshops covering different aspects of developing computer software and applications. The workshops nicely complement the main conference and they together create an exciting scientific program for 5 days. According to the COMPSAC tradition, workshops are held during the first (July 23) and during the last (July 27) day of the conference.

COMPSAC workshops provide a nice place for exchange of ideas and results in different aspects of computer software and applications. The lion's share of contribution to the workshops comes from the linkage with the main research focus of COMPSAC, especially along the software engineering and development aspect. There are 5 related workshops, namely, Quality Oriented Reuse of Software, Security Aspects in Processes and Services Engineering, Software Test Automation, Security, Trust & Privacy for Software Applications, and Computer Forensics in

Software Engineering, contributing to about 30% of the sessions in the workshops. In response to the smart computing theme this year, i.e., Staying Smarter in a Smartening World, there are 3 workshops being proposed, namely, Advances in AI & Machine Learning, Smart Computing & Applications, and Smart IoT Sensors and Social Systems for eHealth and Well-Being Applications. These workshops have contributed to 20% of all workshop sessions. Needless to say, emerging technologies and networking form the third pillar in COMPSAC tradition with more than one third of the contributions. We are pleased to report that the workshops in COMPSAC 2018 are well-balanced as well as highly interesting. We believe that the topics covered by the workshops are closely related to those contained in the main conference and hope that participants can benefit by interacting between one another to stimulate new research ideas and approaches.

This year we received a very large number of papers submitted to the workshops. Only 154 of them were selected for presentation. There are two major paths for contributions to workshops. The standard contribution path follows a direct submission to the workshops in response to the worldwide Call for Papers. Each paper submission undergoes a rigorous review process by at least three independent reviewers and only around half of the submitted papers were accepted. Owing to the relatively low acceptance rate in the main conference, some papers receiving highly positive reviews, but unfortunately cannot be accepted due to acceptance rate limitation, were referred to workshops for consideration. These papers had already undergone a rigorous review process and workshop organizers would ensure that they fit into the theme of the workshops, before they can be formally accepted for presentation. We hereby thank all authors who submitted papers to the workshops for their support of the conference. Selection process was carefully carried out by the workshop organizers. We would like to thank the organizers of all workshops and the program committee members of workshops for their efforts and excellent job, despite working under a very short review cycle. We also would like to thank all people involved into organizing the COMPSAC 2018 and standing committees for their help, to make COMPSAC 2018 a success.

We hope that participants of COMPSAC 2018 will enjoy nice presentations and in-depth discussions, besides attending keynote speeches and joining the panel on the smart world.



COMPSAC 2018 is offering Open Preview, a new IEEE program designed to increase speed to market, allow for accelerated access to research, as well as increase in visibility of the conference publication.

Open Preview allows conference proceedings to be available in the IEEE Xplore digital library, free of charge to all customers, one month before the conference until the conference ends. Access to the conference proceedings will be available via the conference mobile app or directly on the Xplore digital library.

**Main Conference:** <https://ieeexplore.ieee.org/xpl/tocresult.jsp?isnumber=8377622>

**Workshops:** <https://ieeexplore.ieee.org/xpl/tocresult.jsp?isnumber=8377808>



**TCVB Tokyo Convention & Visitors Bureau, with support from the Tokyo Metropolitan Government, will offer free tours of Tokyo sites to overseas participants at COMPSAC!**

*Tours will be available July 23 from 13:30 – 17:00 and July 27 from 9-12:30 and 13:30 – 17:00. Participants must sign up at the TCVB table near the registration desk.* We request that you sign up for only 1 tour to make sure everyone has the opportunity to participate. Tours will be available on a first come / first serve basis.

**Tour 1: TOKYO SKYTREE:** The capital city’s latest icon, and the world’s tallest broadcasting tower is located in Sumida ward, where Edo culture thrives to this day. The elevator moving at a top speed of 600m per minute will take participants to the glass enclosed 360 degree observation deck at 350m above the ground. The main structure consists of a steel skeleton reinforced by steel frames to double the standard strength. Many of the famous features of the Tokyo cityscape, including Rainbow Bridge in the bay area, and, on a clear day, Mt. Fuji in the distance, can be enjoyed from the observation deck.

**Tour 2: River Cruise and Hama-rikyu Gardens:** Half-hour boat cruise down the Sumida River travels under some 14 bridges spanning Tokyo’s main river, passing the capital’s famous landmarks along the way. The cruise arrives at its destination, the majestic Hama-rikyu Gardens along the Tokyo Waterfront in Shiodome, where participants can walk around a beautifully preserved garden that the family of the ruling Tokugawa Shogun owned from the 17th to mid-19th centuries and used for hunting with falcons.

**Tour 3: Meiji Jingu Shrine and Harajuku Shopping:** The Meiji Jingu Shrine is a Shinto shrine, dedicated to Emperor Meiji and his wife Empress Shoken, was established in 1920. Over 100,000 trees were donated by people all over Japan at the time of the shrine’s establishment, creating the expanse of forest and garden that can be seen today. On the first few days of every New Year, more than 3 million people visit Meiji Jingu, making it the most visited shrine in Japan. Meiji Jingu shrine is also the place where Japanese people honor life events, such as births, weddings, and New Year’s celebrations.

**Tour 4: Edo-Tokyo Museum and Asakusa:** Edo-Tokyo Museum introduces the history and culture of Edo, the ancient name for Tokyo. It also fascinates visitors with stories of the city’s captivating past. You can take a look at a traditional playhouse (theatre), and scenes from everyday life that will transport you back in time to the Edo period (1603-1868). This museum presents visitors with a unique opportunity to compare and contrast old Edo with modern Tokyo, so you can appreciate how Tokyo has transformed over the years.

Asakusa Temple is truly a historical haven in modern Tokyo, a gem of the old Edo period (1603-1868). It is the capital’s most famous and oldest Buddhist temple, founded in 628. The famed entrance gate Kaminari-mon (Thunder Gate) with its huge red lantern is a symbol of Asakusa. The 200m-long street of traditional stalls, which leads from the Kaminari-mon to the temple, is always enjoyed by visitors.

**COMPSAC 2018 would like to thank all of our sponsors and supporters!**

IEEE and the IEEE Computer Society are the sole sponsors of COMPSAC.

IPSI, The Information Processing Society of Japan, is a technical co-sponsor of COMPSAC. IPSI, as the largest and leading society in the information technology in Japan, plays a key role for realizing the information society of the 21st century through its academic, cultural and industrial activities.

IEEE Future Directions is a 2018 Silver Sponsor. Future Directions offers resources to emerging technologies including events, technical papers and resources such as webinars, videos, newsletters and podcasts. Future Directions serves as a link to technical communities within IEEE.

JPRS, the Japan Registry Services, is a Bronze Sponsor. JPRS is a company dedicated to maintaining the Internet infrastructure of Japan. JPRS contributes to the development of the Internet and the building of a better future for everyone.

TCVB is the Tokyo Convention and Visitors Bureau. Along with the Tokyo Metropolitan Government, they are offering tours of local sites in Tokyo for overseas visitors to COMPSAC.

Waseda University, located in Shinjuku, Tokyo is a Japanese private university, and consistently ranks among the most academically selective and prestigious universities in Japanese university rankings.

Proxor is hosting their Java Programming T-1 Challenge at COMPSAC 2018.



Mon. July 23	Meeting Hall 1	Meeting Hall 2	Meeting Hall 3	Meeting Hall 4	Meeting 101	Meeting 102	Meeting 103	Meeting 201	Meeting 202	Meeting 203	Meeting 2009/10
9:30 - 11:00am	ADMNET 1	SCA 1	AIML 1	IWFIT				BIG DATA HACKATHON			PROXOR HACKATHON
11:00 - 11:30am	BREAK										
11:30 - 1:00pm	ADMNET 2	SCA 2	AIML 2	CDS 1	ESAS 1	CFSE 1	MEDICOMP 1	BIG DATA HACKATHON	STA 1	STPSA 1	PROXOR HACKATHON
1:00 - 2:00pm	LUNCH BREAK										
2:00 - 3:30pm	ADMNET 3	SCA 3	AIML 3	CDS 2	ESAS 2	CFSE 2	MEDICOMP 2	BIG DATA HACKATHON	STA 2	STPSA 2	PROXOR HACKATHON
3:30 - 4:00pm	BREAK										
4:00 - 5:30pm		SCA 4A	AIML 4	CDS 3	ESAS 3	CFSE 3	SCA 4B	BIG DATA HACKATHON	STA 3	STPSA 3	PROXOR HACKATHON
Tues. July 24	Meeting Hall 1	Meeting Hall 2	Meeting Hall 3	Meeting Hall 4	Meeting 101	Meeting 102	Meeting 103	Meeting 201	Meeting 202	Meeting 203	Meeting 2009/10
9:00 - 10:30am	PLENARY OPENING SESSION KEYNOTE: MARGARET MARTONOSI, PRINCETON UNIVERSITY, USA LOCATION: HITOTSUBASHI HALL										
10:30 - 11:00am	BREAK										
11:00 - 12:30pm	SETA 1	SETA 2	HCSC 1	DSAT 1	EATA 1		ITIP 1	BIG DATA HACKATHON	FAST ABSTRACT 1	SEPT 1	
12:30 - 1:30pm	LUNCH BREAK										
1:30 - 3:00pm	SETA 3	SETA 4	HCSC 2	DSAT 2	EATA 2		ITIP 2	BIG DATA HACKATHON	FAST ABSTRACT 2	SEPT 2	
3:00 - 3:30pm	BREAK										
3:30 - 5:00pm	SETA 5	SETA 6	CAR PANEL	DSAT 3	EATA 3	CAP 1	ITIP 3	BIG DATA HACKATHON	FAST ABSTRACT 3	SEPT 3	
6:30pm	COMPSAC 2018 CONFERENCE RECEPTION LOCATION: GAKUSHIKAIKAN										
Wed. July 25	Meeting Hall 1	Meeting Hall 2	Meeting Hall 3	Meeting Hall 4	Meeting 101	Meeting 102	Meeting 103	Meeting 201	Meeting 202	Meeting 203	Meeting 2009/10
9:00 - 10:30am	KEYNOTE: MASARU KITSUREGAWA, DIRECTOR GENERAL, NATIONAL INSTITUTE OF INFORMATICS, JAPAN LOCATION: HITOTSUBASHI HALL										
10:30 - 11:00am	BREAK										
11:00 - 12:30pm	SETA 7	SETA 8	HCSC 3	DSAT 4	AI PANEL	CAP 2	OER PANEL	GENOME PANEL	FAST ABSTRACT 4	ETA KAPPA NU	
12:30 - 1:30pm	LUNCH BREAK										

1:30 - 2:30pm	KEYNOTE: DEJAN MILOJICIC, HEWLETT PACKARD LABS, USA LOCATION: HITOTSUBASHI HALL										
2:30 - 3:00pm	BREAK										
3:00 - 4:00pm	PLENARY PANEL: A SMARTER FUTURE LOCATION: HITOTSUBASHI HALL										
4:00 - 5:30pm	PLENARY PANEL: YOUNG PROFESSIONALS LOCATION: HITOTSUBASHI HALL										
6:30pm	COMPSAC 2018 BANQUET LOCATION: RIHGA ROYAL HOTEL TOKYO										
Thurs. July 26	Meeting Hall 1	Meeting Hall 2	Meeting Hall 3	Meeting Hall 4	Meeting 101	Meeting 102	Meeting 103	Meeting 201	Meeting 202	Meeting 203	Meeting 2009/10
9:00 - 10:30am	KEYNOTE: BJARNE STROUSTRUP, MORGAN STANLEY, COLUMBIA UNIVERSITY, USA LOCATION: HITOTSUBASHI HALL										
10:30 - 11:00am	BREAK										
11:00 - 12:30pm	SETA 9	SETA 10	SETA 11	DSAT 5		MOWU 1	NCIW 1		SRS 1	CELT 1	
12:30 - 1:30pm	LUNCH BREAK										
1:30 - 3:00pm	SETA 12	SETA 13	SETA 14	DSAT 6		MOWU 2	NCIW 2		SRS 2	CELT 2	
3:00 - 3:30pm	BREAK										
3:30 - 5:00pm	PLENARY PANEL: FUTURE OF COMPUTING LOCATION: HITOTSUBASHI HALL										
5:00 - 6:00pm	PLENARY PLANNING MEETING: COMPSAC 2019 (ALL INVITED) LOCATION: HITOTSUBASHI HALL										
Fri. July 27	Meeting Hall 1	Meeting Hall 2	Meeting Hall 3	Meeting Hall 4	Meeting 101	Meeting 102	Meeting 103	Meeting 201	Meeting 202	Meeting 203	Meeting 2009/10
9:30 - 11:00am	BIOT 1	SDIM 1	EACIS 1	INFOFLOW 1	NETSAP 1	SAPSE 1	QUORS 1			SIS-SS	
11:00 - 11:30am	BREAK										
11:30 - 1:00pm	BIOT 2	SDIM 2	EACIS 2	INFOFLOW 2	NETSAP 2	SAPSE 2			BIG DATA WORKSHOP	IEESD	

## Monday July 23

9:30 – 11:00am Workshop Sessions

### ADMNET: The 6th IEEE International Workshop on Architecture, Design, Deployment and Management of Networks and Applications

#### Session 1: Performance Evaluation & Improvement

Location: Meeting Hall 1

Session Chair: Takashi Yamanoue, Fukuyama University, Japan

Invited Talk: *The Internet: Past, Current and Future—Challenges of Japan*  
Hideki Sunahara

*Development and Evaluation of the MEC Platform Supporting the Edge Instance Mobility*

Tohru Kondo, Keitea Iwasaki, Kaori Maeda

### SCA: The 1st IEEE International Workshop on Smart Computing & Applications Session 1

Location: Meeting Hall 2

Session Chair: Chin-Yu Huang, National Tsing Hua University, Taiwan

*Smart Applications in Heat and Power Systems*

Roman Kuznetsov, Valeri Chipulis, Eugene Voloshin

*A Design of IoT-based Searching System for Displaying Victim's Presence Area*

M Rosyidi, Ratih H Puspita, Shigeru Kashihara, Doudou Fall, Kazushi Ikeda

*A Feature Envy Detection Method Based on Dataflow Analysis*

Woei-Kae Chen, Chien-Hung Liu, Bo-Hong Li

### AIML: The 1st IEEE International Workshop on Advances in AI and Machine Learning: Research & Practice

#### Session 1

Location: Meeting Hall 3

Session Chair: Jun (Luke) Huan, Baidu Research, China

*Review of Small Data Learning Methods*

Xiali Li, Songting Deng, Song Wang, Zhengyu Lv, Licheng Wu

*A Deep Learning Approach for Estimating Inventory Rebalancing Demand in Bicycle Sharing Systems*

Petar Mrazovic, Josep Luis Larriba-Pey, Mihhail Matskin

*On Learning Fuel Consumption Prediction in Vehicle Clusters*

Victor Parque, Tomoyuki Miyashita

*An Approach to Proposing Novel Business Models Basing on Association Rules Learning, BP Neural Network and Creative Computing*

Qinyun Liu, Lin Zhou, Hua Zhou, Hongji Yang

### IWFIT: The 2nd IEEE International Workshop on Future Internet Technologies Session 1

Location: Meeting Hall 4

Session Chair: Koji Okamura, Kyushu University, Japan

*An Adaptive Bandwidth Reservation Method for a Content-Centric Network*

Tomoharu Endo, Atsuko Yokotani, Satoshi Ohzahata, Ryo Yamamoto, Toshihiko Kato

*A Mixed Integer Programming Solution for Network Optimization Under Tunneling-based Traffic Engineering Schemes*

Tsubasa Munemitsu, Daisuke Kotani, Yasuo Okabe

*A Probabilistic Interest Packet Aggregation for Content-Centric Networking*

Yuichi Yasuda, Ryo Nakamura, Hiroyuki Ohsaki

*Bio-inspired Model for Data Distribution in Fog and Mist Computing*

Danilo Vasconcelos, Valdenir Severino, Marcio Maia, Rossana Andrade, Jose Neuman

### Big Data Hackathon

Location: Meeting 201

Session Chair: Wo Chang, National Institute of Standards and Technology (NIST), USA

11:00 – 11:30am Break

11:30 – 1:00pm Workshop Sessions

### ADMNET: The 6th IEEE International Workshop on Architecture, Design, Deployment and Management of Networks and Applications

#### Session 2: Performance Evaluation & Improvement

Location: Meeting Hall 1

Session Chair: Tohru Kondo, Hiroshima University, Japan

*Towards Effective Generation of Synthetic Memory References Via Markovian Models*  
Alfredo Cuzzocrea, Enzo Mumolo, Marwan Hassani, Giorgio Mario Grasso

*Throughput Improvement on MPTCP Selective Bicasting by Cross-Layer Control in Wireless Environment*

Masami Fukuyama, Nariyoshi Yamai, Satoshi Ohzahata, Naoya Kitagawa

*System Resource Management to Control the Risk of Data-Loss in a Cloud-Based Disaster Recovery*

Yuichi Taguchi, Tsutomu Yoshinaga

*A Load-balanced Approach to Time Efficient Resource Scheduling in SDN-enabled Data Center*

Huaiying Sun, Huiqun Yu, Guisheng Fan, Chen Liqiong

### SCA: The 1st IEEE International Workshop on Smart Computing & Applications Session 2

Location: Meeting Hall 2

Session Chair: Chin-Yu Huang, National Tsing Hua University, Taiwan

*How Agile Impacts a Software Corporation: An Empirical Study*  
Hwai-Jung Hsu, Yves Lin

*Time-Aware Recommendation Based on User Preference Driven*  
Thitiporn Neammanee, Saranya Maneeroj

*Smart Block: A Visual Programming Environment for SmartThings*  
Nayeon Bak, Byeong-Mo Chang, Kwanghoon Choi

*Improving the Smartness of Cloud Management via Machine Learning Based Workload Prediction*  
Yongjia Yu, Vasu Jindal, Farokh Bastani, Fang Li, I-Ling Yen

**AIML: The 1st IEEE International Workshop on Advances in AI and Machine Learning: Research & Practice**  
**Session 2**  
**Location: Meeting Hall 3**  
**Session Chair: Takahira Yamaguchi, Keio University, Japan**

*Mining Sequential Patterns to Explore Users' Learning Behavior in a Visual Programming App*  
Wen-Chung Shih

*Predicting Decisions of the Philippine Supreme Court Using Natural Language Processing and Machine Learning*  
Michael Benedict Virtucio, Jeffrey Aborot, John Kevin Abonita, Roxanne Aviñante, Rother Jay Copino, Michelle Neverida, Vanesa Osiana, Elmer Peramo, Joanna Syjuco and Glenn Brian Tan

*Prediction Method of Blasting Vibration by Optimized GEP Based on Spark*  
Yunlan Wang, Bin Zhang, Tianhai Zhao, Zhengxiong Hou, Xiangyu Wu, Hussain Khanzada Muzammil

*Empirical Evaluation of "Idle-Time Analysis" Driven Improved Decision Making by Always-On Agents*  
Sravyasri Garapati, Kamalakar Karlapalem

**CDS: The 6th IEEE International Workshop on Consumer Devices & Systems**  
**Session 1**  
**Location: Meeting Hall 4**  
**Session Chair: Yasuo Okabe, Kyoto University, Japan**

*Community Energy Management System to Encourage Power Saving Competition*  
Takahiro Fujiwara, Kai Takashima, Toshihiko Tanaka, Shigeo Kaneda  
*Development of Bicycle Simulator with Tilt Angle Control Tilt Angle*  
Tetsuji Yamaguchi, Akira Yamada, Takeshi Fujiwara, Ryoichi Takahashi, Tetsuya Shimada, Yuki Ishida, Koichiro Ueda, Shigeo Kaneda

*Interaction with Platform Games Using Smartwatches and Continuous Gesture Recognition: A Case Study*  
Thamer Hobylon Nascimento, Fabrizzio Alphonsus Alves de Melo Nunes Soares, Hugo Alexandre Dantas do Nascimento, Rogerio Lopes Salvini, Mateus Machado Luna, Cristhiane Gonvalves, Eduardo Faria de Souza

*Information Harvesting Method by an Energy Harvesting Device with Multiple Microcontrollers*  
Tadanobu Tsunoda, Kazuaki Nimura

**ESAS: The 13th IEEE International Workshop on E-Health Systems and Web Technologies**  
**Session 1: E-health and Staying Smarter**  
**Location: Meeting 101**  
**Session Chair: Atilla Elci, Aksaray University, Turkey**

*Situ-centric Reinforcement Learning for Recommendation of Tasks in Activities of Daily Living in Smart Homes*  
Richard Oyeleke, Chen-Yeou Yu, Carl Chang

*Development of a Performance Visualization Model of Basic Life Support Training with Feedback Devices for Mobile Application*  
Navadon Khunlertgit

**CFSE: The 10th IEEE International Workshop on Computer Forensics in Software Engineering**  
**Session 1**  
**Location: Meeting 102**  
**Session Chair: Tetsutaro Uehara, Ritsumeikan University, Japan**

*Video Forensics for Detecting Shot Manipulation Using the Information of Deblocking Filter*  
Chen-Kuang Hsieh, Ching-Chun Chiu, Po-Chyi Su

*Design Scheme of Copyright Management System Based on Digital Watermarking and Blockchain*  
Zhaoxiong Meng, Tetsuya Morizumi, Sumiko Miyata, Hirotsugu Kinshita

*Copy-move Forgery Detection using GLCM-based Rotation-invariant Feature: A Preliminary Research*  
Songpon Teerakanok, Tetsutaro Uehara

**MEDICOMP: The 5th IEEE International Workshop on Medical Computing**  
**Session 1**  
**Location: Meeting 103**  
**Session Chair: Ji-Jiang Yang, Tsinghua University, China**

*Emotion Recognition Based on Photoplethysmogram and Electroencephalogram*  
Zhongkai Tong, Zhen Fang, Xianxiang Chen, Kai Tong, Zhengling He, Xianlong Wang

*Gastric Pathology Image Recognition Based on Deep Residual Networks*  
Bo Liu, Kelu Yao, Mengmeng Huang, Jiahui Zhang, Yong Li, Rong Li

*Vessel Recognition of Retinal Fundus Images Based on Fully Convolutional Network*  
Jianqiang Li, Qidong Hu, Azhar Imran, Li Zhang, Ji-jiang Yang, Qing Wang

**STA: The 10th IEEE International Workshop on Software Test Automation**

**Session 1: Tools & Advanced Techniques**

**Location: Meeting 202**

**Session Chair: AKM Jahangir Majumder, Miami University, USA**

*Property-Based Testing of Browser Rendering Engines with a Consensus Oracle*  
Joel Martin, David Levine

*A Projection-based Approach for Memory Leak Detection*  
Xiaohui Sun, Jing Xu, Chenkai Guo, Sihan Xu, Naipeng Dong, Xiujuan Ji, Sen Zhang

**STPSA: The 13th IEEE International Workshop on Security, Trust, and Privacy for Software Applications**

**Session 1**

**Location: Meeting 203**

**Session Chair: Natalia Stakhnova, University of New Brunswick, Canada**

*Identifying Security Spots for Data Integrity*  
Pushkar Ogale, Michael Shin, Sasanka Abeysinghe

*A Privacy Safeguard Framework for a WebRTC/WoT-based Healthcare Architecture*  
Saad El Jaouhari, Ahmed Bouabdallah

*Removing Software Vulnerabilities During Design*  
George Yee

**Big Data Hackathon**

**Location: Meeting 201**

**Session Chair: Wo Chang, National Institute of Standards and Technology (NIST), USA**

**1:00 - 2:00pm      Lunch Break**  
**2:00 - 3:30pm      Workshop Sessions**

**ADMNET: The 6th IEEE International Workshop on Architecture, Design, Deployment and Management of Networks and Applications**

**Session 3: Security & Management**

**Location: Meeting Hall 1**

**Session Chair: Nariyoshi Yamai, Tokyo University of Agriculture and Technology, Japan**

*On the Confirmation Method of the User's Record of the GakuNinMoodle*  
Nobukuni Hamamoto, Shigetoshi Yokoyama, Hiroshi Ueda

*Large-scale Certificate Management on Multi-tenant Web Servers*  
Ryosuke Matsumoto, Kenji Rikitake, Kentaro Kuribayashi

*Security Requirement Modeling Support System Using Software Security Knowledge Base*

Tatsuo Hazeyama, Shun'ichi Tanaka, Takafumi Tanaka, Hiroaki Hashiura, Seiji Munetoh, Takao Okubo, Haruhiko Kaiya, Hironori Washizaki, Nobukazu Yoshioka

**SCA: The 1st IEEE International Workshop on Smart Computing & Applications Session 3**

**Location: Meeting Hall 2**

**Session Chair: Feng-Jian Wang, National Chaio Tung University, Taiwan**

*A New Way of Being Smart: Creative Computing and Its Applications in Tourism*  
Lu Zhang, Hongji Yang, Chi Zhang, Nao Li

*A Wisdom Search Engine*  
Hongji Yang, Sicong Ma, Lin Zou, Qinyun Liu

*Successive POI Recommendation with Category Transition and Temporal Influence*  
I-Cheng Lin, Yi-Shu Lu, Wen-Yueh Shih, Jiun-Long Huang

**AIML: The 1st IEEE International Workshop on Advances in AI and Machine Learning: Research & Practice**

**Session 3**

**Location: Meeting Hall 3**

**Session Chair: Ryohei Orihara, Toshiba, Japan**

*Practice of Multi-Robot Teahouse based on PRINTEPS and Evaluation of Service Quality*

Takeshi Morita, Naho Kashiwagi, Ayanori Yorozu, Michael Walch, Hideo Suzuki, Dimitris Karagiannis, Takahira Yamaguchi

*Transfer Learning Method for Very Deep CNN for Text Classification and Methods for its Evaluation*

Shun Moriya, Chihiro Shibata

*Understanding Mindsets Across Markets, Internationally: A Public-Private Innovation Project for Developing a Tourist Data Analytic Platform*

Kristoffer Jon Albers, Mikkel N. Schmidt, Morten Mørup, Marisciel Litong-Palima, Rasmus Bonnevie, Fumiko Kano Glückstad

*Modified Memetic Self-Adaptive Firefly Algorithm for 2D Fractal Image Reconstruction*

Akemi Galvez, Andres Iglesias

**CDS: The 6th IEEE International Workshop on Consumer Devices & Systems  
Session 2**

**Location: Meeting Hall 4**

**Session Chair: Yasuo Okabe, Kyoto University, Japan**

*Adapted Decision Support service based on the Prediction of Offline consumers' Real-Time Intention and devices interactions*

Fanjuan Shi, Chirine Ghedira Guegan

*Text Entry on SmartWatches: A Systematic Review of Literature*

Mateus M. Luna, Fabrizzio Alphonsus A. M. N. Soares, Joyce Siqueira, Hugo A. D. Nascimento, Thamer H. Horbylon Nascimento, Eduardo Faria de Souza, Ronaldo Martins da Costa

*The Use of System Development Methodologies in the Development of Mobile Applications: Are They Worthy of Use?*

Wilfred Okonkwo, Magda Huisman

*Situation Based Energy Management Framework on Mobile Devices*

Chen-Yeou Yu, Richard O. Oyeleke, Carl K. Chang

**ESAS: The 13th IEEE International Workshop on E-Health Systems and Web Technologies**

**Session 2: Applications for E-health and Staying Smarter**

**Location: Meeting 101**

**Session Chair: Carl K. Chang, Iowa State University, USA**

*Ontology-based Obesity Tracking System for Children and Adolescents*

Ozgu Tacyildiz, Duygu Celik Ertugrul, Yiltan Bitirim, Nese Akcan, Atilla Elci

*Are mHealth Apps Secure? A Case Study*

Alessio Della Libera, Chiara Braghin, Stelvio Cimato

**CFSE: The 10th IEEE International Workshop on Computer Forensics in Software Engineering**

**Session 2**

**Location: Meeting 102**

**Session Chair: Tetsutaroh Uehara, Ritsumeikan University, Japan**

*The Expansion of Source Code Abbreviations Using a Language Model*

Abdulrahman Alatawi, Weifeng Xu, Jie Yan

*Modeling and Verifying OpenFlow Scheduled Bundle Mechanism using CSP*

Huiwen Wang, Huibaiao Zhu, Lili Xiao, Wanling Xie, Gang Lu

**MEDICOMP: The 5th IEEE International Workshop on Medical Computing  
Session 2**

**Location: Meeting 103**

**Session Chair: Ji-Jiang Yang, Tsinghua University, China**

*A Childhood Disease Database based on Word Segmentation Technology: Research and Practice*

Shu Wang, Min Chen, Mingyue Wei, Shishi Ma, Guangjun Yu

*Retinal Vessel Segmentation Based on an Improved U-Net*

Zhiqiang Qiao, Qinyan Zhang, Ying Cao, Jijiang Yang

**STA: The 10th IEEE International Workshop on Software Test Automation  
Session 2: Fault Prediction, Injection & Coverage**

**Location: Meeting 202**

**Session Chair: Hossain Shahriar, Kennesaw State University, USA**

*Generating Realistic Logically Unreasonable Faulty Data for Fault Injection*

Ju Qian, Fusheng Lin, Changjian Li, Zhiyi Zhang, Zhe Chen

*High-frequency Keywords to Predict Defects for Android Applications*

Yaqing Fan, Xinya Cao, Jing Xu, Sihan Xu, Hongji Yang

**STPSA: The 13th IEEE International Workshop on Security, Trust, and Privacy for Software Applications**

**Session 2**

**Location: Meeting 203**

**Session Chair: Hasan Jamil, University of Idaho, USA**

*Resource and Role Hierarchy Based Access Control for Resourceful Systems*

Nidhiben Solanki, Yongtao Huang, I-Ling Yen, Farokh Bastani, Yuqun Zhang

*An Unknown Malware Detection Using Execution Registry Access*

Sanouphab Phomkeona, Kento Kono, Koji Okamura

*A Security Assessment of HCE-NFC enabled E-Wallet Banking Android Apps*

Ratinder Kaur, Yan Li, Junaid Iqbal, Hugo Gonzalez, Natalia Stakhanova

**Big Data Hackathon**

**Location: Meeting 201**

**Session Chair: Wo Chang, National Institute of Standards and Technology (NIST), USA**

**3:30 – 4:00pm**

**Break**

**4:00 – 5:30pm**

**Workshop Sessions**

**SCA: The 1<sup>st</sup> IEEE International Workshop on Smart Computing & Applications  
Session 4A**

**Location: Meeting Hall 2**

**Session Chair: Nien-Lin Hsueh, Feng Chia University, Taiwan**

*Indoor Augmented Reality Using Deep Learning for Industry 4.0 Smart Factories*

Hanas Subakti, Jehn-Ruey Jiang

*NFS: An Algorithm for Avoiding Restarts to Improve the Efficiency of Crawling Android Applications*

Chien-Hung Liu, Woei-Kae Chen, Shu-Hang Ho

*Test Command Auto-Wait Mechanisms for Record and Playback-Style Web Application Testing*

Shin-Jie Lee, Yu-Xian Chen, Shang-Pin Ma, Wen-Tin Lee

*Using Service Dependency Graph to Analyze and Test Microservices*

Shang-Pin Ma, Chen-Yuan Fan, Yen Chuang, Wen-Tin Lee, Shin-Jie Lee, Nien-Lin Hsueh

**AIML: The 1st IEEE International Workshop on Advances in AI and Machine Learning: Research & Practice**

**Session 4**

**Location: Meeting Hall 3**

**Session Chair: San Murugesan, BRITE Professional Services, Australia**

*Approximation of Time-Consuming Simulation Based on Generative Adversarial Network*

Ryohei Orihara, Ryota Narasaki, Yuma Yoshinaga, Yasuhiro Morioka, Yoshiyuki Kokojima

*Model-Space Regularization and Fully Interpretable Algorithms for Postural Control Quantification*

Alice Nicolaï, Julien Audiffren

*Generation of Character Illustrations from Stick Figures using a Modification of Generative Adversarial Network*

Yuuya Fukumoto, Daiki Shimizu, Chihiro Shibata

*NDFMF: An Author Name Disambiguation Algorithm based on the Fusion of Multiple Features*

Xiaolong Xu, Yongping Li, Mark Liptrott, Nik Bessis

**CDS: The 6th IEEE International Workshop on Consumer Devices & Systems**

**Session 3**

**Location: Meeting Hall 4**

**Session Chair: Atsushi Tagami, KDDI Research, Inc., Japan**

*Application on Intersection Classification Algorithm Based on Clustering Analysis*

Hao Wang, Dong Chen

*Using Interactive E-books in Elementary School Origami Activities: Analysis of Learning Effect, Learning Motivation and Cognitive Load*

Wen-Jung Chu, Hong-Ren Chen

*Process Modeling, Behavior Analytics and Group Performance Assessment of e-Learning Logs via Fuzzy Miner Algorithm*

Wichian Premchaiswadi, Parham Porouhan, Nucharee Premchaiswadi

*Who Are Interested in Open Education? An Analysis of the Participants in the First MOOC of the IEEE Education Society*

Rosa Cabedo, Edmundo Tovar, Sergio Martin, Martin Llamas, Manuel Caeiro, Oscar Martinez, Rebecca Strachan, Manuel Castro, Sorel Reisman

**ESAS: The 13th IEEE International Workshop on E-Health Systems and Web Technologies**

**Session 3: Monitoring for E-health and Staying Smarter**

**Location: Meeting 101**

**Session Chair: Stelvio Cimoto, University of Milan, Italy**

*An Android Application for Geolocation Based Health Monitoring, Consultancy and Alarm System*

Emre Oner Tartan, Cebraail Ciflikli

*Knowledge Based e-Health Surveillance System for Predicting Hospital Acquired Infections*

Amin Noaman, Abdul Ragab, Nabeela Al-Abdullah, Arwa Jamjoom, Farrukh Nadeem, Anser Ali

**CFSE: The 10th IEEE International Workshop on Computer Forensics in Software Engineering**

**Session 3**

**Location: Meeting 102**

**Session Chair: Tetsutaroh Uehara, Ritsumeikan University, Japan**

*A High-capacity Watermarking Algorithm Using Two Bins Histogram Modification*

Zhen Yue, Zichen Li, Peifei Song, Shumei Zhang, Yixian Yang

*TRAC: A Therapeutic Regimen-oriented Access Control Model in Healthcare*

Hongcan Gao, Yanfeng Wu, Sihan Xu, Xiaolei Hou, Chenkai Guo, Jing Xu

*Enhancing Inter-Node Process Migration for Load Balancing on Linux-based NUMA Multicore Systems*

Mei-Ling Chiang, Shu-Wei Tu, Wei-Lun Su, Chen-Wei Lin

**SCA: The 1st IEEE International Workshop on Smart Computing & Applications**

**Session 4B**

**Location: Meeting 103**

**Session Chair: Chiu-Hung Chang, Providence University, Taiwan**

*The Implementation of a Data-Accessing Platform Built from Big Data Warehouse of Electric Loads*

Sheng-Cang Chou, Chao-Tung Yang, Fuu-Cheng Jiang, Chih-Hung Chang

*The Integration of Shared Storages with the CephFS and Rados Gateway for Big Data Accessing*

Jia-Yow Weng, Chao-Tung Yang, Chih-Hung Chang

*The Learning Effectiveness Analysis of JAVA Programming with Automatic Grading System*

Chorng-Shiuh Koong, Hsin-Ying Tsai, Yi-Yang Hsu, Yeh-Cheng Chen

*A Creative IoT Platform for Cloud Fog Computing*

Authors: Tse-Chuan Hsu, Hongji Yang, Dong-Meau Chang

**STA: The 10th IEEE International Workshop on Software Test Automation**

**Session 3: Monitoring & Prioritization**

**Location: Meeting 202**

**Session Chair: Cristina Seceleanu, Malardalen University,**

*Synthetic Runtime Monitoring of Microservices Software Architecture*

Panuchart Bunyakiati, Chadarat Phipathananunth

*Test Case Prioritization for GUI Regression Testing Based on Centrality Measures*

Yijie Ren, Bei-Bei Yin, Bin Wang

**STPSA: The 13th IEEE International Workshop on Security, Trust, and Privacy for Software Applications**

**Session 3**

**Location: Meeting 203**

**Session Chair: Hossain Shahriar, Kennesaw State University, USA**

*Chained of Things: A Secure and Dependable Design of Autonomous Vehicle Services*

Md Golam Moula Mehedi Hasan, Amarjit Datta, Mohammad Ashiqur Rahman, Hossain Shahriar

*A Best-Effort Damage Mitigation Model for Cyber-Attacks on Smart Grids*

Mohammad Ashrafuzzaman, Hasan Jamil, Yacine Chakhchoukh, Frederick Sheldon

*Static Analysis of HIPPA Security Requirements in Electronic Health Record Applications*

Maryam Farhadi, Hisham Haddad, Hossain Shahriar

**Big Data Hackathon**

**Location: Meeting 201**

**Session Chair: Wo Chang, National Institute of Standards and Technology (NIST), USA**

## Tuesday July 24

**9:00 – 10:30am Conference Opening Session**

**Keynote Address: Margaret Martonosi, Princeton University, USA**

***New Metrics and Models for a Post-ISA Era: Managing Complexity and Scaling Performance in Heterogeneous Parallelism and Internet-of-Things***

**Location: Hitotsubashi Hall**

**Session Chairs: Sorel Reisman and Sheikh Iqbal Ahamed, COMPSAC Standing Committee Chair and Vice Chair**

**10:30 – 11:00am Break**

**11:00 – 12:30pm Conference Symposia Sessions**

**SETA: Software Engineering Technologies & Applications**

**Session 1: Software**

**Location: Meeting Hall 1**

**Session Chair: Mikio Aoyama, Nanzan University, Japan**

*An Empirical Analysis on Web Service Anti-pattern Detection Using a Machine Learning Framework*

Lov Kumar, Ashish Sureka

*EFSM-oriented Minimal Traces Set Generation Approach for Web Applications*

Weiwei Wang, Junxia Guo, Zheng Li, Ruilian Zhao

*DevOps Improvements for Reduced Cycle Times with Integrated Test Optimizations for Continuous Integration*

Dusica Marijan, Marius Liaaen, Sagar Sen

**SETA: Software Engineering Technologies & Applications**

**Session 2: Functionality**

**Location: Meeting Hall 2**

**Session Chair: Jing Xu, Nankai University, China**

*A Multi-layered Desires Based Framework to Detect Users' Evolving Non-functional Requirements*

Peng Sun, Jingwei Yang, Hua Ming, Carl Chang

*A Framework for Updating Functionalities Based on the MAPE Loop Mechanism*

Shinya Tsuchida, Hiroyuki Nakagawa, Emiliano Tramontana, Andrea Fornaia, Tatsuhiro Tsuchiya

*Using Code Evolution Information to Improve the Quality of Labels in Code Smell Data Sets*

Yijun Wang, SongyuanHu, Linfeng Yin, Xiaocong Zhou

**HCSC: Human Computing & Social Computing**

**Session 1**

**Location: Meeting Hall 3**

**Session Chair: Katsunori Oyama, Nihon University, Japan**

*Coarsening Network Based on Local Link Similarity for Community Detection*  
YuZhu Wu, QianWen Zhang, JinKui Xie

*What Graphs Do International Investors See in the ASEAN Capital Markets?*  
Uthai Tanlamai

*Decision Making Support of UAV Path Planning for Efficient Sensing in Radiation Dose Mapping*  
Tokishi Morita, Katsunori Oyama, Taiju Mikoshi, Toshihiro Nishizono

### **DSAT: Data Sciences, Analytics & Technologies**

#### **Session 1**

**Location: Meeting Hall 4**

**Session Chair: Wo Chang, National Institute of Standards and Technology (NIST), USA**

*Knowledge Map Construction Using Text Mining and Artificial Bee Colony Algorithm*  
Chieh-Yuan Tsai, Wei-Zhong Ji

*Mining Rules from Real-valued Time Series: A Relative Information-Gain-based Approach*  
Yuanduo He, Guangju Peng, Xu Chu, Yasha Wang, Zhu Jin, Xiaorong Wang

*World Grid Square Data Reference Framework and its Potential Applications*  
Aki-Hiro Sato, Shoki Nishimura, Hiroe Tsubaki, Tsuyoshi Namiki

### **EATA: Emerging Advances in Technology & Applications**

#### **Session 1: Future Computing Technologies**

**Location: Meeting 101**

**Session Chair: Ali Hurson, Missouri University of Science & Technology, USA**

*TBAC: Transaction-based Access Control on Blockchain for Resource Sharing with Cryptographically Decentralized Authorization*  
Yan Zhu, Yao Qin, Guohua Gan, Shuai Yang, William Cheng-Chung Chu

*Object Naming Service Supporting Heterogeneous Object Code Identification for IoT System*  
Duo Ding, Minbo Li, Zhu Zhu

*Energy Efficient Scheduling for Heterogeneous Fog Computing Architectures*  
Hsiang-Yi Wu, Che-Rung Lee

### **ITIP: IT in Practice**

#### **Session 1**

**Location: Meeting Hall 103**

**Session Chair: Morris Chang, University of South Florida, USA**

*Load Prediction for Data Centers Based on Database Service*  
Rui Cao, Zhaoyang Yu, Trent Marbach, Jing Li, Gang Wang, Xiaoguang Liu

*Randomness Classes in Bugs Framework (BF): True-Random Number Bugs (TRN) and Pseudo-Random Number Bugs (PRN)*  
Irena Bojanova, Yaacov Yesha, Paul E. Black

### **Fast Abstract**

#### **Session 1**

**Location: Meeting 202**

**Session Chair: Hiroki Takakura, NII, Japan**

*Systematic Literature Review Regarding Communication Support in Project-based Learning of Software Development*  
Yutsuki Miyashita, Takafumi Tanaka, Atsuo Hazeyama

*Painless Tennis Ball Tracking System*  
Wook-Sung Yoo, Zach Jones, Henok Atsbaha, David Wingfield

*Remote Monitoring and Control Web Service for Internet of Heating*  
Bo Cheng, Shuai Zhao, Junliang Chen

*Possibilistic Reasoning about Agent Systems*  
Tuan-Fang Fan, Churn-Jung Liao

*An Enhanced Temperature Aware Routing Protocol in Wireless Body Area Networks*  
Beom-Su Kim, Babar Shah, Ki-Il Kim

*On Selecting Collaborative Modeling tools*  
Panuchart Bunyakiati, Usa Sammapun

*Machine Translation Considering Context Information Using Encoder-Decoder Model*  
Tetsuto Takano, Satoshi Yamane

### **SEPT: Security, Privacy & Trust**

#### **Session 1**

**Location: Meeting 203**

**Session Chair: Mohammad Zulkernine, Queen's University, Canada**

Invited Talk: Bhavani Thuraisingham, University of Texas at Dallas

### **Big Data Hackathon**

**Location: Meeting 201**

**Session Chair: Wo Chang, National Institute of Standards and Technology (NIST), USA**

**12:30 – 1:30pm**

**Lunch Break**

**1:30 – 3:00pm**

**Conference Symposia Sessions**

### **SETA: Software Engineering Technologies & Applications**

#### **Session 3: Software**

**Location: Meeting Hall 1**

**Session Chair: Y.T. Yu, City University of Hong Kong, Hong Kong**

*Combining Constraint Solving with Different MOEAs for Configuring Large Software Product Lines: A Case Study*

Kai Shi, Huiqun Yu, Jianmei Guo, Guisheng Fan, Xingguang Yang, Liqiong Chen

*Cross-Project Change-Proneness Prediction*

Chao Liu, Dan Yang, Xin Xia, Meng Yan, Xiaohong Zhang

*Visualizing a Tangled Change for Supporting Its Decomposition and Commit Construction*

Sarocho Sothornprapakorn, Shinpei Hayashi, Motoshi Saeki

### **SETA: Software Engineering Technologies & Applications**

#### **Session 4: Mobile**

**Location: Meeting Hall 2**

**Session Chair: W.K. Chan, City University of Hong Kong, Hong Kong**

*An Assertion Framework for Mobile Robotic Programming with Spatial Reasoning*

Hao Sun, Xiaoxing Ma, Tiansi Dong, Armin B. Cremers, Chun Cao

*Exploration Scheduling in Event Replay for GUI Testing on Android Apps*

Chia-Hui Lin, Cheng-Zen Yang, Tzu-Heng Lin, Zhi-Jun You

*DroidCC: A Scalable Clone Detection Approach for Android Applications to Detect Similarity at Source Code Level*

Junaid Akram, Zhendong Shi, Majid Mumtaz, Ping Luo

### **HCSC: Human Computing & Social Computing**

#### **Session 2**

**Location: Meeting Hall 3**

**Session Chair: Mikio Aoyama, Nanzan University, Japan**

*A Japanese Software Keyboard for Tablets that Reduces User Fatigue*

Tepppei Yajima, Hiroshi Hosobe

*An Aurora Image Classification Method based on Improved Sparse Representation and Distributed WKNN*

Yichun Li, Ning kang Jiang

### **DSAT: Data Sciences, Analytics & Technologies**

#### **Session 2**

**Location: Meeting Hall 4**

**Session Chair: Jie Li, University of Tsukuba, Japan**

*A Local Cores-based Hierarchical Clustering Algorithm for Data Sets with Complex Structures*

Dongdong Cheng, Qingshen Zhu, Quanwang Wu

*Web Items Recommendation Based on Multi-view Clustering*

Hong Yu, Tiantian Zhang, Jiixin Chen, Chen Guo, Yahong Lian

*Characterizing Common and Domain-specific Package Bugs: A Case Study on Ubuntu*

Xiaoxue Ren, Qiao Huang, Xin Xia, Zhenchang Xing, Lingfeng Bao, David Lo

### **EATA: Emerging Advances in Technology & Applications**

#### **Session 2: Vehicles & Transportation**

**Location: Meeting 101**

**Session Chair: Yuuichi Teranishi, NITC, Japan**

*Lane Change Detection Algorithm on Real World Driving for Arbitrary Road Infrastructures*

Jennie Lioris, Annie Bracquemond, Laurent Bionic, Gildas Thiolon

*Mapping of Sensor and Route Coordinates for Smart Cities*

Yasir Saleem, Noel Crespi

*A Discrete Differential Evolution Algorithm for Carpooling*

Fu-Shiung Hsieh, Fu-Min Zhan

### **ITIP: IT in Practice**

#### **Session 2**

**Location: Meeting Hall 103**

**Session Chair: Irena Bojanova, National Institute of Standards and Technology (NIST), USA**

*An IoT Platform for Civil Infrastructure Monitoring*

Seongwoon Jeong, Kincho Law

*The Smart-X Model for Smart Cities*

Nishtha Kesswani, Sanjay Kumar

### **Fast Abstract**

#### **Session 2**

**Location: Meeting 202**

**Session Chair: Dave Towey, University of Nottingham Ningbo China**

*Spatio-temporal Data Retention System with MEC for Local Production and Consumption*

Daiki Nobayashi, Kazuya Tsukamoto, Takeshi Ikenaga, Mario Gerla

*Designing a Computer Detective Game for Science Education*

Fu-Hsing Tsai

*Model Check of Real-time Property of Embedded Assembly Program Using CEGAR*

Hiromu Kamide, Kosuke Uemura, Satoshi Yamane

*Comprehensive Data Tree by Actor Messaging for Incremental Hierarchical Clustering*

Taiki Shimizu, Kohei Sakurai

*Applying Code Vectors for Presenting Software Features in Machine Learning*

Hyun-il Lim

*A Framework for Real Time Emotion Recognition Based on Human ANS using Pervasive Device*

Feri Setiawan, Sunder Ali Khowaja, Aria Ghora Prabono, Bernardo Nugroho Yahya, Seok-Lyong Lee

*A New Approach for the Verification of BPMN Models Using Refinement Patterns*

Salma Ayari, Yousra Ben Dali Hlaoui, Leila Jemni Ben Ayed

**SEPT: Security, Privacy & Trust**

**Session 2**

**Location: Meeting 203**

**Session Chair: Eun-Sun Cho, Chungnam National University, Korea**

*Towards Light-weight Deep Learning Based Malware Detection*

Zeliang Kan, Haoyu Wang, Guoai Xu, Yao Guo, Xiangqun Chen

*ACP: An Efficient User Location Privacy Preserving Protocol for Opportunistic Mobile Social Networks*

Rui Huang, Yichao Lin, Bidi Ying, Amiya Nayak

*The Impact of Lightweight Disassembler on Malware Detection: An Empirical Study*

Donghong Zhang, Zhenyu Zhang, Bo Jiang, T.H. Tse

*A Pull-type Security Patch Management of an Intrusion Tolerant System under a Periodic Vulnerability Checking Strategy*

Junjun Zheng, Hiroyuki Okamura, Tadashi Dohi

**Big Data Hackathon**

**Location: Meeting 201**

**Session Chair: Wo Chang, National Institute of Standards and Technology (NIST), USA**

**3:00 – 3:30pm Break**

**3:30 – 5:00pm Conference Symposia Sessions**

**SETA: Software Engineering Technologies & Applications**

**Session 5: Concurrency**

**Location: Meeting Hall 1**

**Session Chair: Rui Wang, Capital Normal University, China**

*DistGear: A Lightweight Event-driven Framework for Developing Distributed Applications*

Junming Ma, Bo An, Donggang Cao, Xiangqun Chen

*A Lightweight Program Dependence Based Approach to Concurrent Mutation Analysis*

Chang-ai Sun, Jingting Jia, Huai Liu, Xiangyu Zhang

*GBRAD: A General Framework to Evaluate Design Strategies for Hybrid Race Detection*

Jialin Yang, W.K. Chan, Y.T. Yu, Jacky Keung

**SETA: Software Engineering Technologies & Applications**

**Session 6: Cloud**

**Location: Meeting Hall 2**

**Session Chair: Ian Bayley, Oxford Brookes University, UK**

*SPESC: A Specification Language for Smart Contracts*

Xiao He, Bohan Qin, Yan Zhu, Xing Chen, Yi Liu

*An Insight Into the Impact of Dockerfile Evolutionary Trajectories on Quality and Latency*

Yang Zhang, Gang Yin, Tao Wang, Yue Yu, Huaimin Wang

*Improving Cluster Resource Efficiency with Oversubscription*

Jie Chen, Chun Cao, Ying Zhang, Xiaoxing Ma, Haiwei Zhou, Chengwei Yang

**Panel: Creating Autonomous Vehicle Systems**

**Location: Meeting Hall 3**

**Moderator/Session Chair: Jean-Luc Gaudiot, 2017 IEEE Computer Society President**

Panelists: Shaoshan Liu, PerceptIn

Jialin Jiao, Uber

Songwen Pei, University of Shanghai for Science & Technology, China

Jie Tang, South China University of Technology, China

**DSAT: Data Sciences, Analytics & Technologies**

**Session 3**

**Location: Meeting Hall 4**

**Session Chair: Tsung Teng Chen, National Taipei University, Taiwan**

*Deciphering the Big Data Research Themes*

Tsung Teng Chen, Maria Lee

*Towards Lambda-based Near Real-time OLAP over Big Data*

Alfredo Cuzzocrea, Rim Moussa

*Characterizing Incidents in Cloud-based IoT Data Analytics*

Hong-Linh Truong, Manfred Halper

*Efficient Discovery of Traveling Companion from Evolving Trajectory Data Stream*

Thi Thi Shein, Sutheera Puntheeranurak, Makoto Imamura

**EATA: Emerging Advances in Technology & Applications**

**Session 3: Emerging Applications**

**Location: Meeting 101**

**Session Chair: Hiroyuki Sato, The University of Tokyo, Japan**

*Formal Analysis of k-Resiliency for Collaborative UAVs*

A H M Jakaria, Mohammad Ashiqur Rahman

*Image Processing Strategies for Automatic Detection of Common Gastroenterological Disease*

Rafael Neujahr Copstein, Vincenzo Abichequer, Matheus Cruz Andrade, Lucas Almeida Machado, Evandro Rodrigues, Leonardo Pavanatto Soares, Marcio Sarroglia Pinho

**CAP: Computer Architectures & Platforms**

**Session 1: Scheduling & Communication**

**Location: Meeting 102**

**Session Chair: Keiji Kimura, Waseda University, Japan**

*Adaptive Splitting-based Block I/O Scheduling in Disk Storage*

Hui Li, Shangxiong Chen, Guoqiang Xiao, Xiaoning Peng, Jianwei Liao, Jianwei Liao

*A Market-oriented Heuristic Algorithm for Scheduling Parallel Applications in Big Data Service Platform*

Qingshi Shao, Shijun Liu, Li Pan, Chenglei Yang, Tingting Niu

*Column-Partition and Row-Partition Turn Model*

Yuan Cai, Wei Luo, Dong Xiang

*Research on Asynchronous Inter-VM Communication Mechanism Based on Embedded Hypervisor*

Rui Wang, Libin Xu, Yuebin Bai, Kun Cheng, Zhongzhao Wang, Guangqiang Luan, Hailong Yang, Weitao Wang

**ITIP: IT in Practice**

**Session 3**

**Location: Meeting 103**

**Session Chair: San Murugesan, BRITE Professional Services, Australia**

*Long Short-term Memory Neural Network for Artificial Dialogue Generation*

Sid Ahmed Selouani, Mohammed Sidi Yakoub

*Sentiment Classification System of Twitter Data for US Airline Service Analysis*

Ankita Rane, Anand Kumar

*WorkflowDSL: Scalable Workflow Execution with Provenance for Data Analysis Applications*

Tharidu Fernando, Nikita Gureev, Mihhail Matskin, Michael Zwick, Thomas Natschlaeger

**Fast Abstract**

**Session 3**

**Location: Meeting 202**

**Session Chair: Michiharu Takemoto, NTT, Japan**

*On Exploiting Temporal Periodicity for Message Delivery in Mobile Opportunistic Networks*

Yu-Feng Hsu, Chih-Lin Hu, Hsin-Ju Hsiao

*Cyclic Performance Fluctuation of TCP BBR*

Kouto Miyazawa, Naoki Oda, Kanon Sasaki, Saneyasu Yamaguchi

*Towards Efficient Network Resource Management in SDN-based Heterogeneous Vehicular Networks*

Adnan Mahmood, Bernard Butler, Brendan Jennings

*Clustering TLS Sessions Based on Protocol Fields Analysis*

Hiroaki Yamauchi, Akihiro Nakao, Masato Oguchi, Shu Yamamoto, Saneyasu Yamaguchi

*On Graph Representation with Smallest Numerical Encoding*

Victor Parque, Tomoyuki Miyashita

*Numerical Representation of Modular Graphs*

Victor Parque, Tomoyuki Miyashita

*Mitigating SDN Flow Table Overflow*

Hanwu Luo, Wenzhen Li, Ying Qian, Liang Dou

**SEPT: Security, Privacy & Trust**

**Session 3**

**Location: Meeting 203**

**Session Chair: Dianxiang Xu, Boise State University, USA**

*Proof of Contribution: A Modification of Proof of Work to Increase Mining Efficiency*

Tengfei Xue, Ahmed Zahir, Krishna Moniz, Ganyuan Cao, Cong Wang, Yuyu Yuan

*A Novel Secret Sharing Approach for Privacy-preserving Authenticated Disease Risk Queries in Genomic Databases*

Maitraye Das, Nusrat Jahan Mozumder, Sharmin Afrose, Khandakar Ashrafi Akbar, Tanzima Hashem

*Improving Fitness Function for Language Fuzzing with PCFG Model*

Xiaoshan Sun, Yu Fu, Yun Dong, Zhihao Liu, Yang Zhang

*Answering Multiple Aggregate Queries Under a Specific Privacy Condition*

Jordi Aranda, Javier Herranz, Jordi Nin Guerrero

**Big Data Hackathon**

**Location: Meeting 201**

**Session Chair: Wo Chang, National Institute of Standards and Technology (NIST), USA**

## Wednesday July 25

9:00 – 10:30am Plenary Session

**Keynote Address:** Masaru Kitsuregawa, Director General, NII, Japan  
*Transformational Role of Big Data in Society 5.0*

**Location:** Hitotsubashi Hall

**Session Chairs:** Sorel Reisman and Sheikh Iqbal Ahamed, COMPSAC Standing Committee Chair and Vice Chair

10:30 – 11:00am Break

11:00 – 12:30pm Conference Symposia Sessions

**SETA: Software Engineering Technologies & Applications**

**Session 7: Code Comments**

**Location:** Meeting Hall 1

**Session Chair:** Chang-Ai Sun, University of Science & Technology Beijing, China

*Automatic Detection of Outdated Comments During Code Changes*

Zhiyong Liu, Huanchao Chen, Xiangping Chen, Xiaonan Luo, Fan Zhou

*Automatically Detecting the Scopes of Source Code Comments*

Huanchao Chen, Zhiyong Liu, Xiangping Chen, Fan Zhou, Xiaonan Luo

*Investigating the Significance of the Bellwether Effect to Improve Software Effort*

*Prediction: Further Empirical Study (J1C2 paper)*

Solomon Mensah, Jacky Keung, Stephen MacDonell, Michael Bosu, Kwabena Bennin

**SETA: Software Engineering Technologies & Applications**

**Session 8: Repair**

**Location:** Meeting Hall 2

**Session Chair:** Eun-Sun Cho, Chungnam National University, Korea

*Search-based Efficient Automated Program Repair Using Mutation and Fault Localization*

Shuyao Sun, Junxia Guo, Ruilian Zhao, Zheng Li

*Identifying Supplementary Bug-fix Commits*

Tao Ji, Jinkun Pan, Liqian Chen, Xiaoguang Mao

**HCSC: Human Computing & Social Computing**

**Session 3**

**Location:** Meeting Hall 3

**Session Chair:** Filip Jagodzinski, Western Washington University, USA

*Invited Talk: Deep Learning-based Assessment of Cognitive Dysfunction for Screening Test of Dementia*

Kaoru Sakatani

**DSAT: Data Sciences, Analytics & Technologies**

**Session 4**

**Location:** Meeting Hall 4

**Session Chair:** May Wang, Georgia Institute of Technology, USA

*A Software Popularity Recommendation Method Based on Evaluation Model*

Yan Wang, Peixiang Bai, Deyu Yang, Jiantao Zhou, Xiaoyu Song

*Analysis and Prediction of Endorsement-based Skill Assessment in LinkedIn*

Yan Wu, Nitish Dhakal, Diaxiang Xu, Jin-Hee Cho

*An Improved Promoter Recognition Model Using Convolutional Neural Network*

Ying Qian, Yu Zhang, Sasha Ye, Bingyu Guo, Yuzhu Wu, Jiongmin Zhang

IT Professional 20<sup>th</sup> Anniversary Panel

San Murugesan, BRITE Professional Services, Australia

**Panel: The New Realities of AI**

**Location:** Meeting 101

**Moderator/Session Chair:** San Murugesan, BRITE Professional Services, Australia

Panelists: Wo Chang, National Institute of Standards and Technology (NIST), USA

William Cheng Chung Chu, Tunghai University, Taiwan

Ryohei Orihara, Toshiba, Japan

Takahira Yamaguchi, Keio University, Japan

**CAP: Computer Architectures & Platforms**

**Session 2: Algorithms & Verification**

**Location:** Meeting 102

**Session Chair:** Cristina Secleanu, Mälardalen University, Sweden

*Measurement-based Evaluation of Data-parallelism for OpenCV Feature Detection Algorithms*

Jakob Danielsson, Marcus Jägemar, Tiberiu Secleanu, Moris Behnam, Mikael Sjödin

*SMT-based Timing Analysis and Verification of Real-time Tasks*

Haifeng Xing, Jian-tao Zhou, Xiaoyu Song, Rui-dong Qi

*Towards Fault-tolerant Task Backup and Recovery in the seL4 Microkernel*

Guangqiang Luan, Yuebin Bai, Libin Xu, Chao Yu, Chunyang Wang, Junfang Zheng,

Qingbin Chen, Weitao Wang

**Panel: Mainstreaming OERs for Computer Science & Information Technology Education**

**Location:** Meeting 103

**Moderator/Session Chair:** Edmundo Tovar, Universidad Politécnica de Madrid, Spain

Panelists: Tiziana Margaria, University of Limerick and Lero, the Irish Software

Research Centre

Henry Chan, The Hong Kong Polytechnic University, Hong Kong

Dave Towey, University of Nottingham Ningbo China

Claudio Demartini, Politecnico di Torino, Italy

**Fast Abstract****Session 4****Location: Meeting 202****Session Chair: Hossain Shahriar, Kennesaw State University, USA***An Integrated Memory and SSD Caching I/O Subsystem*

Hsung-Pin Chang, Da-Wei Chang, Yu-Cain He

*Benchmark Requirements for Assessing Software Security Vulnerability Testing Tools*

Reza M. Parizi, Kai Qian, Hossain Shahriar, Fan Wu, Lixin Tao

*Effects of Variable Part Auto Configuration and Management for Software Product Line*

TaeHo Kim, Sungwon Kang, Jihun Lee

*Secure Mobile IPC Software Development with Vulnerability Detectors in Android Studio*

Xianyong Meng, Kai Qian, Dan Lo, Md Arabin Islam Talukder, Hossain Shahriar, Prabir Bhattacharya

*A Comparison of EEG and NIRS Biomarkers for Assessment of Depression Risk*

Labiblais Rahman, Katsunori Oyama

*Android Malware Detector Exploiting Convolutional Neural Network and Adaptive Classifier Selection*

Yangxu Jin, Ting Liu, Ancheng He, Yu Qu, Jianlei Chi

*Web Application Firewall: Network Security Models and Configuration*

Victor Clincy, Hossain Shahriar

*Empirical Analysis of Coding Standard Violation Focusing on Its Coverage and Importance*

Aji Ery Burhandenny, Hirohisa Aman, Minoru Kawahara

**Eta Kappa Nu****Location: Meeting 203****Session Chair: Paolo Montuschi, Politecnico di Torino, Italy****Panel: Exploring the Genome: Hurdles, Obstacles, and Solutions with the Genome Analysis Toolkit (GATK)****Location: Meeting 201**

Panelists: Jonn Smith, The Broad Institute, USA

David Roazen, The Broad Institute, USA

Louis Bergelson, The Broad Institute, USA

Chris Norman, The Broad Institute, USA

James Emery, The Broad Institute, USA

**12:30 – 1:30pm Lunch Break****1:30 – 2:30pm Plenary Session****Plenary Keynote: Dejan Milojicic, HP Labs, USA*****Generalize or Die: Operating Systems Support for Memristor-based Accelerators*****Location: Hitotsubashi Hall****Session Chairs: Sorel Reisman and Sheikh Iqbal Ahamed, COMPSAC Standing Committee Chair and Vice Chair****2:30 – 3:00pm Break****3:00 – 4:00pm Plenary Session****Plenary Panel: *A Smarter Future with New and Emerging Innovations and Predictions*****Location: Hitotsubashi Hall****Moderator/Session Chair: Kathy Grise, IEEE Future Directions**

Panelists: Nicholas Napp, Xmark Labs, LLC

Robert Saracco, EIT ICTLABS Italy and Italy Node Director of EIT Digital

May Wang, Georgia Tech University, USA

Dejan Milojicic, Hewlett Packard Labs, USA

**4:00 – 5:30pm Plenary Session****Plenary Panel: *Young Professionals Panel*****Location: Hitotsubashi Hall****Moderator/Session Chair: Roger Fujii, 2016 IEEE Computer Society President**

Panelists: Cecelia Metra, 2019 IEEE Computer Society President

Hironori Kasahara, 2018 IEEE Computer Society President

Dejan Milojicic 2014 IEEE Computer Society President

John Walz, 2012 IEEE Computer Society President

**6:30pm COMPSAC 2018 Banquet – Rihga Royal Hotel Tokyo**

## Thursday July 26

9:00 – 10:30am Plenary Session

**Keynote: Bjarne Stroustrup, Columbia University, USA**

*What Students Should Know About C++*

**Location: Hitotsubashi Hall**

**Session Chairs: Sorel Reisman and Sheikh Iqbal Ahamed, COMPSAC Standing**

**Committee Chair and Vice Chair**

10:30 – 11:00am Break

11:00 – 12:30pm Conference Symposia Sessions

**SETA: Software Engineering Technologies & Applications**

**Session 9: Verification**

**Location: Meeting Hall 1**

**Session Chair: Dave Towey, University of Nottingham Ningbo China**

*A Generalized Approach to Verification Condition Generation*

Cláudio Belo Lourenço, Maria João Frade, Shin Nakajima, Jorge Sousa Pinto

*Runtime Verification of Robots Collision Avoidance Case Study*

Chenxia Luo, Rui Wang, Yu Jiang, Kang Yang, Yong Guan, Xiaojuan Li, Zhiping Shi

*Formalization and Verification of Mobile Systems Calculus Using the Rewriting Engine Maude*

Wanling Xie, Huibiao Zhu, Min Zhang, Gang Lu, Yucheng Fang

**SETA: Software Engineering Technologies & Applications**

**Session 10: Bugs**

**Location: Meeting Hall 2**

**Session Chair: Cheng-Zen Yang, Yuan Ze University, Taiwan**

*Predicting the Brakability of Blocking Bug Pairs*

Hui Ding, Lin Chen, Wanwangying Ma, Lin Chen, Yuming Zhou, Baowen Xu

*Precise Extraction of Malicious Behaviors*

Khanh Huu The DAM, Tayssir Touili

**SETA: Software Engineering Technologies & Applications**

**Session 11: Prioritization**

**Location: Meeting Hall 3**

**Session Chair: Yan Cai, Chinese Academy of Sciences, China**

*ReTestDroid: Towards Safer Regression Test Selection for Android Applications*

Bo Jiang, Yu Wu, Yongfei Zhang, Zhenyu Zhang, W.K. Chan

*How Do Software Metrics Affect Test Case Prioritization?*

Masataka Ozawa, Tadashi Dohi, Hiroyuki Okamura

*Test Case Prioritization Based on Method Call Sequences*

Jianlei Chi, Yu Qu, Qinghua Zheng, Zijiang Yang, Wuxia Jin, Di Cui, Ting Liu

**DSAT: Data Sciences, Analytics & Technologies**

**Session 5**

**Location: Meeting Hall 4**

**Session Chair: Maria Lee, Shih Chien University, Taiwan**

*A Deep Learning Based Approach Based on Stacked Denoising Autoencoders for Protein Function Prediction*

Lester James Miranda, Jinglu Hu

*Faster Deep Q-learning Using Neural Episodic Control*

Daichi Nishio, Satoshi Yamane

*Automated Dental Image Analysis by Deep Learning on Small Dataset*

Jie Yang, Yuchen Xie, Lin Liu, Bin Xia, Zhangqiang Cao, Chuanbin Guo

*A Service-oriented Approach to Modeling and Reusing Event Correlations*

Meiling Zhu, Chen Liu, Yanbo Han

**MOWU: Mobile, Wearable & Ubiquitous Computing**

**Session 1**

**Location: Meeting 102**

**Session Chair: Morris Chang, University of South Florida, USA**

*Delivery Route Optimization through Occupancy Prediction from Electricity Usage*

Shimpei Ohsugi, Noboru Koshizuka

*CARMUS: Towards a General Framework for Continuous Activity Recognition with Missing Values on Smartphones*

Tianheng Wu, Liang Wang, Zhiwen Zheng, Simeng Wu, Jun Ma, Xianping Tao, Jian Lu

*A Study and Estimation a Lost Person Behavior in Crowded Areas Using Accelerometer Data from Smartphones*

Mohammed Balfas, Sheikh Iqbal Ahamed, Chandana Tamma, Muhammad Arif, Ahmed J. Kattan, William Chu

**NCIW: Networks, Communications, Internet & Web Technologies**

**Session 1**

**Location: Meeting 103**

**Session Chair: Motonori Nakamura, National Institute of Informatics, Japan**

*Winner Determination in Combinatorial Double Auctions based on Differential Evolution Algorithms*

Fu-Shiung Hsieh, Yi-Hong Guo

*A Low-cost, High-efficiency SDN Framework to Diminish Redundant ARP and IGMP Traffics in Large-scale LANs*

You-Chiun Wang, Han Hu

*A Flow-grained End-to-End Delay Analysis for RC Traffic in TTEthernet*  
Ling Guo, Xi Li, Bo Wan, Changlong Li, Kaiqi Zhou

### Student Research Symposium

#### Session 1

**Location: Meeting 202**

**Session Chair: Toyokazu Akiyama, Kyoto Sangyo University, Japan**

*Analysis of the Relationship Between Server Location and RTT*

Hyunsu Mun, Jeasung Na, Hanul Park, Seungtae Kim, Youngseok Lee, John Springer

*A Secure Sharing System for Cloud Desktop Applications Migrating with Optimized User Experience*

Yoshinori Kamori, Kenta Hayashi, Kaori Maeda, Tohru Kondo, Reiji Aibara

*A Tuning Method of a Monitoring System for Network Forensics in Cloud Environment*

Shintaro Ishihara, Toyokazu Akiyama

*Alternating Primary Subflow in MPTCP by External Program without Kernel Modification*

Reido Horigome, Nariyoshi Yamai, Naoya Kitagawa, Satoshi Ohzahata

*A Study on Sparse-modeling Based Approach for Betweenness Centrality Estimation*

Ryotaro Matsuo, Ryo Nakamura, Hiroyuki Ohsaki

*Model Checking of Embedded Systems Using RTCTL while Generating Timed Kripke Structure*

Yajun Wu, Satoshi Yamane

### CELT: Computing Education & Learning Technologies

#### Session 1

**Location: Meeting 203**

**Session Chair: Henry Chan, The Hong Kong Polytechnic University, Hong Kong**

*Improving the Effectiveness of SQL Learning Practice: A Data-driven Approach*

Luca Cagliero, Luigi De Russis, Laura Farinetti, Teodoro Montanaro

*Computational Thinking: Learning by Doing with the Cinco Adventure Game Tool*

Frederik Gossen, Dennis Kühn, Tiziana Margaria, Anna-Lena Lamprecht

*Towards Adaptive Systems for Automatic Formative Assessment in Virtual Learning Communities*

Michele Fioravera, Marina Marchisio, Sergio Rabellino, Luigi Di Caro

**12:30 – 1:30pm**

**Lunch Break**

**1:30 – 3:00pm**

**Conference Symposia Sessions**

### SETA: Software Engineering Technologies & Applications

#### Session 12: Modeling

**Location: Meeting Hall 1**

**Session Chair: Huiqun Yu, East China University of Science & Technology, China**

*Model Checking of Embedded Systems Using RTCTL While Generating Timed Kripke Structure*

Yajun Wu, Satoshi Yamane

*Model Checking Coordination of CPS Using Timed Automata*

Kaiqiang Jiang, Chunlin Guan, Jiahui Wang, Dehui Du

*Towards Modeling Cyber-Physical Systems with SysML/MARTE/pCCSL*

Ping Huang, Kaiqiang Jiang, Chunlin Guan, Dehui Du

*Modeling and Verifying MooseFS in CSP*

Yucheng Fang, Huibiao Zhu, Gang Lu, Lili Xiao, Wanling Xie

### SETA: Software Engineering Technologies & Applications

#### Session 13: Software Analysis

**Location: Meeting Hall 2**

**Session Chair: Xiaodong Liu, Edinburgh Napier University, UK**

*PERDICE: Towards Discovering Software Inefficiencies Leading to Cache Misses and Branch Mispredictions*

Ting Chen, Wanyu Huang, Muhui Jiang, Xiapu Luo, Lei Xue, Ying Wang, Xiaosong Zhang

*Structural Function Based Code Clone Detection Using a New Hybrid Technique*

He Jiang, Yanming Yang, Xin Chen, Zhilei Ren

*A Structural Analysis Method of OSS Development Community Evolution Based on a Semantic Graph Model*

Seiya Kato, Yota Inagaki, Mikio Aoyama

### SETA: Software Engineering Technologies & Applications

#### Session 14: Program Analysis

**Location: Meeting Hall 3**

**Session Chair: Jun Ma, Nanjing University, China**

*Effective Discrete Memetic Algorithms for Covering Array Generation*

Xu Guo, Xiaoyu Song, Jiantao Zhou

*Loop Invariant Generation for Non-Monotone Loop Structures*

Chunyan Hou, Jingsong Wang, Chen Chen, Kai Shi

*On the Selection of Strength for Fixed-strength Interaction Coverage Based Prioritization*

Rubing Huang, Weiwen Zong, Tsong Yueh Chen, Dave Towey, Jinfu Chen, Yunan Zhou, Weifeng Sun

**DSAT: Data Sciences, Analytics & Technologies****Session 6****Location: Meeting Hall 4****Session Chair: Kathy Grise, IEEE***Elucidating Which Pairwise Mutations Affect Protein Stability: An Exhaustive Big Data Approach*

Nicholas Majeski, Filip Jagodzinski

*DLCEncDec: A Fully Character-level Encoder-Decoder Model for Neural Responding Conversation*

Sixing Wu, Ying Li, Xinyuan Zhang, Zhonghai Wu

*BDViewer – A Web-based Big Data Processing and Visualization Tool*

Yan Li, Junming Ma, Bo An, Donggang Cao

*Optimising Toward Completed Videos in an Online Video Advertising Exchange*

Douglas McIlwraith, Andrea Catalucci, Sam Boyd, Raouf Aghrout, Yi-ke Guo

**Student Research Symposium****Session 2****Location: Meeting 202****Session Chair: Toyokazu Akiyama, Kyoto Sangyo University, Japan***A Study on Emulating Automotive IP Network with Network Virtualization*

Ryuichiro Maegawa, Ryo Nakamura, Yasuhiro Yamasaki, Hiroyuki Ohsaki

*A Study on Comparative Analysis of End-to-End Routing and Opportunistic Routing*

Chuta Minamiguchi, Natsuko Kawabata, Ryo Nakamura, Hiroyuki Ohsaki

*Building a CFG to Include Exceptions*

Seong-Kyun Mok, Eun-Sun Cho

*A Study on Robustness of Complex Networks against Random Node Removals*

Kazuyuki Yamashita, Ryo Nakamura, Hiroyuki Ohsaki

*A Study on the Impact of Delayed Packet Forwarding in Content-centric Networking*

Yuichi Yasuda, Ryo Nakamura, Hiroyuki Ohsaki

*Toward Firmware Type Analysis Using Machine Learning Techniques*

Seoksu Lee, Eun-Sun Cho

**CELT: Computing Education & Learning Technologies****Session 2****Location: Meeting 203****Session Chair: Tiziana Margaria, University of Limerick and Lero, Ireland***Improving Blended Learning Outcomes Through Academic Social Media*

Han Wan, Kangxu Liu, Qiaoye Yu, Jin Ding, Xiaopeng Gao

*A Model of Formative Automatic Assessment and Interactive Feedback for STEM*

Alice Barana, Alberto Conte, Michele Fioravera, Marina Marchisio, Sergio Rabellino

*Web-based Learning Object Search Engine Solution Together with Data Visualization: The Case of MERLOT II*

W.K.T.M. Gunarathne, Timothy K. Shih, Chalothon Chootong, Worapot Sommoool, Yi-Cheng Chen, Ankhtuya Ochirbat, Sorel Reisman

*Technology-enhanced Self-regulated Learning: Assessment Support Through an Evaluation Centre*

Iris Braun, Tenshi Hara, Felix Kapp, Lucas Braeschke, Alexander Schill

**MOWU: Mobile, Wearable & Ubiquitous Computing****Session 2****Location: Meeting 102****Session Chair: Xuebin Ma, Inner Mongolian University, Mongolia***Building a Tailored Text Messaging System for Smoking Cessation in Native American Populations*

Drew Williams, Golam Mushih Tanimul Ahsan, Ivor Addo, Sheikh Iqbal Ahamed, Daniel Petereit, Linda Burhansstipanov, Linda U. Krebs, Mark Dignan

*A Culturally Tailored Intervention System for Cancer Survivors to Motivate Physical Activity*

Golam Mushih Tanimul Ahsan, Jannatul Ferdouse Tumpa, Riddhiman Adib, Sheikh Iqbal Ahamed, Daniel Petereit, Linda Burhansstipanov, Linda U. Krebs, Mark Dignan

*mmCNN: A Novel Method for Large Convolutional Neural Network on Memory-limited Devices*

Shijie Li, Yong Dou, Jinwei Xu, Qiang Wang, Xin Niu

**NCIW: Networks, Communications, Internet & Web Technologies****Session 2****Location: Meeting 103****Session Chair: Satoshi Ohzahata, The University of Electro-Communications, Japan***An Efficient Retrograde Storage for Self-destructing Messages on Frequently Colliding Hash Table*

Yan Zhu, Shuai Yang, Guohua Gan, Xiao He

*A Solution for Minimum Link Flow Problem with Sparse Modeling*

Ryotaro Matsuo, Ryo Nakamura, Hiroyuki Ohsaki

*DTN-Knca: A High Throughput Routing Based on Contact Pattern Detection in DTNs*

Weitao Wang, Yuebin Bai, Peng Feng, Yuhao Gu, Shuai Liu, Wenhao Jiang, Jun Huang

*A Multihop Broadcast Mechanism for Emergency Messages Dissemination in VANETs*

Sizheng Li, Chuanhe Huang

**3:00 – 3:30pm**      **Break**  
**3:30 – 5:00pm**      **Plenary Session**

**Plenary Panel: *The Future of Computing***

**Location: Hitotsubashi Hall**

**Moderator/Session Chair: Stephen S. Yau, Arizona State University, USA**

Panelists: Sheikh Iqbal Ahamed, Marquette University, USA

Jiannon Cao, Hong Kong Polytechnic University, Hong Kong

Jianhua Ma, Hosei University, Japan

Bhavani Thuraisingham, University of Texas at Dallas, USA

**5:00 – 6:00pm**      **Plenary Session**

**COMPSAC 2019 Planning Meeting (all invited)**

**Location: Hitotsubashi Hall**

**Session Chair: Sorel Reisman and Sheikh Iqbal Ahamed, COMPSAC Standing Committee Chair and Vice Chair**

**Friday July 27**

**9:30 – 11:00am**      **Workshop Sessions**

**BIOT: The 5th IEEE International Workshop on Big Data Management and Infrastructure for the Internet of Things**

**Session 1: IoT Platform & Use Cases**

**Location: Meeting Hall 1**

**Session Chair: Susumu Takeuchi, NTT Corporation, Japan**

*Exploratory Study for Data Visualization in Internet of Things*

Mohamad Yuzrie Khalid, Patrick Hang Hui Then, Valliapan Raman

*Real-time data-intensive Telematics Functionalities at the Extreme Edge of the Network: Experience with the PrEstoCloud Project*

Salman Taherizadeh, Blaz Novak, Marija Komatar, Marko Grobelnik

*Secure IoT Agent Platform with m-cloud Distributed Statistical Computation Mechanism*

Ikuo Nakagawa, Shinji Shimojo

*An Accurate Model for Hurricane Trajectory Prediction*

Taylor Cox, Calvin S.H. Hoi, Carson Leung, Caden Marofke

**SDIM: The 1st IEEE International Workshop on Secure Digital Identity Management**

**Session 1**

**Location: Meeting Hall 2**

**Session Chair: Hideaki Goto, Tohoku University, Japan**

[Invited Paper] *Secure and Long-lived Wireless Sensor Network for Data Center Monitoring*

Toyokazu Akiyama, Morito Matsuoka, Kazuhiro Matsuda, Yumi Sakemi, Hisashi Kojima

*Towards an Operable Evaluation System for Evidence of Identity*

Øyvind Toftegaard, Bian Yang

**EACIS: The 1st IEEE International Workshop on Emotion and Affective Computing Interfaces and Systems**

**Session 1**

**Location: Meeting Hall 3**

**Session Chair: Yoshito Tobe, Aoyama Gakuin University, Japan**

*Human Emotional State Analysis during Driving Simulation Experiment using Bio-Emotion Estimation Method*

Midori Sugaya, Issei Watanabe, Reiji Yoshida, Feng Chen

*Differences of Passenger Unease Emotional Areas, An Experimental Case Study*

Nahoko Takada, Shinji Nakagawa

*Preliminary Reaction Analysis of Audience with Bio-emotion Estimation Method*

Takuya Hiramatsu, Reiji Yoshida, Feng Chen, Midori Sugaya

**INFOFLOW: The 1st IEEE International Workshop on Flow Oriented Approaches in Internet of Things and Cyber-Physical Systems**

**Session 1: Building Infocloud Environment**

**Location: Meeting Hall 4**

**Session Chair: Hirozumi Yamaguchi, Osaka University, Japan**

*Invited Talk: Information Flow of Things: Framework for Realizing Regional IoT Services through In-Situ Data Processing*

Keiichi Yasumoto (Nara Institute of Science and Technology, Japan)

*Access Control Model for IoT Environment Including Automated Configuration*

Kenta Yokogi, Naoya Kitagawa and Nariyoshi Yamai

*Near Cloud: Low-Cost Low-Power Cloud Implementation for Rural Area Connectivity and Data Processing*

Jose Paolo Talusan, Yugo Nakamura, Teruhiro Mizumoto and Keiichi Yasumoto

**NETSAP: The 8th IEEE International Workshop on Network Technologies for Security, Administration, and Protection**

**Session 1**

**Location: Meeting 101**

**Session Chair: Yoshiaki Hori, Saga University, Japan**

*A Malware Beacon of Botnet by Local Periodic Communication Behavior*

Yi-Ren Yeh, Ming-Kung Sun, C.-Y. Huang

*Detecting Emerging Large-Scale Vulnerability Scanning Activities by Correlating Low-Interaction Honeypots with Darknet*

Ryoh Akiyoshi, Daisuke Kotani, Yasuo Okabe

*Lightweight Classification of IoT Malware Based on Image Recognition*

Jiawei Su, Danilo Vasconcellos Vargas, Sanjiva Prasad, Daniele Sgandurra, Yaokai Feng, Kouichi Sakurai

**SAPSE: The 10th IEEE International Workshop on Security Aspects in Processes and Services Engineering**

**Session 1**

**Location: Meeting 102**

**Session Chair: Stelvio Cimato, Università Degli Studi di Milano, Italy**

*A New Paradigm to Address Threats for Virtualized Services*

Stefan Covaci, Matteo Repetto, Fulvio Riso

*Detecting Web Spams Using Evidence Theory*

Moitrayee Chatterjee, Akbar Siami Namin

*LloPY: A Legal Compliant Ontology to Preserve Privacy for the Internet of Things*

Faiza Loukil, Chirine Ghedira-Guegan, Khouloud Boukadi, Aicha Nabila Benharkat

*Evaluation of the Effectiveness of Risk Assessment and Security Fatigue Visualization Model for Internal E-crime*

Takashi Hatashima, Keita Nagai, Asami Kishi, Hikaru Uekusa, Shigeaki Tanimoto, Atushi Kanai, Hitoshi Fuji, Kazuhiko Ohkubo

**QUORS: The 12th IEEE International Workshop on Quality Oriented Reuse of Software**

**Session 1**

**Location: Meeting 103**

**Session Chair: Xiaodong Liu, Edinburgh Napier University, UK**

*SUCCEED: Support Mechanism for Creating and Executing Workflows for Decoupled SAS in IoT*

Belmondo Aragão Jr, Rossana Andrade, Marcio Maia, Tales Nogueira

*Towards Modelling and Reasoning about Uncertain Data of Sensor Measurements for Decision Support in Smart Spaces*

Oluwaseun Bamgboye, Xiaodong Liu, Peter Cruickshank

*Utilising Abstraction Techniques and Gaming Theory for Developing Intangible Cultural Heritage*

Sicong Ma, Hongji Yang, Meiyu Shi

*Evaluating How Cyclomatic Complexity Changes in the Context of Software Evolution*

Huihui Li, Xufang Gong, Li Liao, Bixin Li

**SIS-SS: The 2nd IEEE International Workshop on Smart IoT Sensors and Social Systems for eHealth and Well-being Applications**

**Session 1**

**Location: Meeting 203**

**Session Chair: Luca Vollerò, Università Campus Bio-Medico di Roma, Italy**

*A Comparison Study on Dynamic Duty Cycle and Dynamic Channel Polling Approaches for Wireless Sensor Networks*

Shama Siddiqui, Anwar Khan, Sayeed Ghani

*New RSSI-based LoRa localization Algorithms for Very Noisy Outdoor Environment*

Ka-Ho Lam, Chi-Chung Cheung, Wah-Ching Lee

*A Smart Sensor Architecture for eHealth Applications*

Ermanno Cordelli, Giorgio Pennazza, Marco Sabatini, Marco Santonico, Luca Vollerò

**11:00 – 11:30am Break**

**11:30 – 1:00pm Workshop Sessions**

**BIOT: The 5th IEEE International Workshop on Big Data Management and Infrastructure for the Internet of Things**

**Session 2: IoT Data Utilization**

**Location: Meeting Hall 1**

**Session Chair: Hideya Ochiai, University of Tokyo, Japan**

*Introducing Hierarchical Clustering with Real Time Stream Reasoning into Semantic-enabled IoT*

Jingyu Sun, Masato Kamiya, Susumu Takeuchi

*A New Combined CNN-RNN Model for Sector Stock Price Analysis*

Ruixun Zhang, Zhaozheng Yuan, Xiuli Shao

*Assisting Replace Method with Method Object: Selecting Fields and Preserving Data Access*

Andrea Fornaia, Emiliano Tramontana

**SDIM: The 1st IEEE International Workshop on Secure Digital Identity Management**

**Session 2**

**Location: Meeting Hall 2**

**Session Chair: Bian Yang, Norwegian University of Science & Technology, Norway**

*Texture Based Vein Biometrics for Human Identification: A Comparative Study*

Khayrul Bashar, Manzur Murshed

*Storage Protocol for Securing Blockchain Transparency*

Ryosuke Abe, Hiroki Watanabe, Shigenori Ohashi, Shigeru Fujimura, Atsushi Nakadaira

*Sora Identity: Secure, Digital Identity on the Blockchain*  
Makoto Takemiya, Bohdan Vanieiev

**EACIS: The 1st IEEE International Workshop on Emotion and Affective Computing Interfaces and Systems**  
**Session 2**

**Location: Meeting Hall 3**

**Session Chair: Midori Sugaya, Shibaura Institute of Technology, Japan**

*Influence of Hedonic State Visualization on Self and Surroundings*  
Guillaume Lopez, Hiroko Tobase, Naoya Isoyama

*An Experiment of Human Feeling for Hospitality Robot Measured with Biological Information*

Yuki Nishida, Reiji Yoshida, Yuya Takahashi, Midori Sugaya

**INFOFLOW: The 1st IEEE International Workshop on Flow Oriented Approaches in Internet of Things and Cyber-Physical Systems**

**Session 2: Data Processing on Inflow Platform**

**Location: Meeting Hall 4**

**Session Chair: Keiichi Yasumoto, Nara Institute of Science & Technology, Japan**

*A Social Sensor Visualization System for a Platform to Generate and Share Social Sensor Data*

Zenosuke Aiko, Keisuke Nakashima, Tomoki Yoshihisa and Takahiro Hara

*Proposal of Automatic GPU Offloading Technology on Open IoT Environment*

Yoji Yamato, Tatsuya Demizu, Hirofumi Noguchi and Misao Kataoka

*Low-cost Pedestrian Counter Using Wi-Fi APs for Smart Building Applications*

Satomi Kura, Yoh Shiraishi and Hirozumi Yamaguchi

*Dynamic Public Key Certificates for IoT and WSN scenarios*

HungYu Chien

**NETSAP: The 8th IEEE International Workshop on Network Technologies for Security, Administration, and Protection**

**Session 2**

**Location: Meeting 101**

**Session Chair: Yoshiaki Hori, Saga University, Japan**

*Towards a Packet Traffic Genome Project as a Method for Realtime Sub-Flow Traffic Analysis*

Marat Zhanikeev

*PDL: An Efficient Prediction-based False Data Injection Attack Detection and Location in Smart Grid*

Wanjiao Shi, Yufeng Wang, Qun Jin, Jianhua Ma

*Formal Verification and Improvement of the PKMv3 Protocol Using CSP*  
Jinpeng Jiang, Hongyan Mao, Rumeng Shao, Yuanmin Xu

**SAPSE: The 10th IEEE International Workshop on Security Aspects in Processes and Services Engineering**

**Session 2**

**Location: Meeting 102**

**Session Chair: Stelvio Cimato, Università Degli Studi di Milano, Italy**

*Understanding the Origins of Weak Cryptographic Algorithms Used for Signing Android Apps*

Kanae Yoshida, Hironori Imai, Nana Serizawa, Tatsuya Mori, Akira Kanaoka

*Experience Report: How to Extract Security Protocols' Specifications from C Libraries*

Itzel Vazquez Sandoval, Gabriele Lenzini

**Big Data Workshop**

**Location: Meeting 202**

**Session Chair: Kenichi Yoshida, University of Tsukuba, Japan**

*An Efficient Approach to Forecasting Monthly Calls for Repair from Gas Consumers*

Huiqun Yu, Cunbin Deng, Guisheng Fan, Liqiong Chen, Huaiying Sun

*A Cooperated Data Management Platform for Coronary Heart Disease Early Identification and Risk Warning Research*

Peili Yang, Hui Zhao, Jimin Liang, Xuezhen Yin, Jian Ye, Lingfeng Yang

**IEESD: The 8th IEEE International Workshop on Industrial Experience in Embedded Design**

**Location: Meeting 203**

**Session Chair: Detlef Streitferdt, Ilmenau University of Technology, Germany**

*Increasing Efficiency in Data Flow Oriented Model Driven Software Development for Softcore Processors*

Michael Kirchhoff, Jörn Weisensee, Detlef Streitferdt, Wolfgang Fengler, Elena Rozova

*State Estimation Using Neural Networks in Industrial Processes*

Philipp Nenninger, Nils Bieler

*Traceability in Systems Engineering: An Avionics Case Study*

Nasser Mustafa, Yvan Labiche, Dave Towey



# COMPSAC 2019

MILWAUKEE, WISCONSIN, USA JULY 15-19

<https://ieeecompsac.computer.org/2019/>

## DATA DRIVEN INTELLIGENCE FOR A SMARTER WORLD

In the era of “big data” there is an unprecedented increase in the amount of data collected in data warehouses. Extracting meaning and knowledge from these data is crucial for governments and businesses to support their strategic and tactical decision making. Furthermore, artificial intelligence (AI) and machine learning (ML) makes it possible for machines, processing large amounts of such data, to learn and execute tasks never before accomplished. Advances in big data-related technologies are increasing rapidly. For example, virtual assistants, smart cars, and smart home devices in the emerging Internet of Things world, can, we think, make our lives easier. But despite perceived benefits of these technologies/methodologies, there are many challenges ahead. What will be the social, cultural, and economic challenges arising from these developments? What are the technical issues related, for example, to the privacy and security of data used by AI/ML systems? How might humans interact with, rely on, or even trust AI predictions or decisions emanating from these technologies? How can we prevent such data-driven intelligence from being used to make malicious decisions?

Authors are invited to submit original, unpublished research work, as well as industrial practice reports. Simultaneous submission to other publication venues is not permitted. All submissions must adhere to IEEE Publishing Policies, and all will be vetted through the IEEE CrossCheck portal.

### IMPORTANT DATES

- October 1, 2018: Workshop proposals due
- October 30, 2018: Workshop proposal notifications
- January 21, 2019: Abstracts and full papers due
- April 7, 2019: Paper notifications
- April 15, 2019: Workshop papers due
- May 1, 2019: Workshop paper notifications
- May 17, 2019 – Camera ready submissions and advance author registration due

### ORGANIZING COMMITTEE

- General Chairs:** Vladimir Getov, University of Westminster, UK; Jean-Luc Gaudiot, University of California, Irvine, USA
- Program Chairs in Chief:** Nariyoshi Yamai, Tokyo University of Agriculture & Technology, Japan; Stelvio Cimato, University of Milan, Italy; Morris Chang, University of South Florida, USA
- Workshop Chairs:** Yuuichi Teranishi, National Institute of Information and Communications Technology, Japan; Ji-Jiang Yang, Tsinghua University, China; Hong Va Leong, Hong Kong Polytechnic University, Hong Kong
- Local Organizing Committee Chair:** Praveen Madiraju, Marquette University, USA
- Standing Committee Chair:** Sorel Reisman, California State University, USA
- Standing Committee Vice Chair:** Sheikh Iqbal Ahamed, Marquette University, USA

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