The 2020 IEEE Cybermatics Congress

The 3rd IEEE International Conference on Blockchain (Blockchain-2020)
The 13th IEEE International Conference on Cyber, Physical and Social Computing (CPSCom-2020)
The 16th IEEE International Conference on Green Computing and Communications (GreenCom-2020)
The 13th IEEE International Conference on Internet of Things (iThings-2020)
The 6th IEEE International Conference on Smart Data (SmartData-2020)

November 4 – November 6, 2020 Rhodes, Greece
http://www.ieee-cybermatics.org/2020/cybermatics/

Conference Program and Information Booklet

Organized by
St. Francis Xavier University and University of West Attica

Sponsored by
IEEE, IEEE Computer Society, IEEE System, Man, and Cybermatics Society
IEEE Technical Committee on Scalable Computing, IEEE Technical Committee on Cybermatics

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Presentation Guidelines

Conference Date

The conference is to be held from Nov 4-6, 2020. The time for conference program is based on AST, Atlantic Standard Time.

For Session Chairs

Session Chairs are requested to join the zoom at least 10 minutes before their session.

For Authors

You are strongly encouraged to join the zoom during your presentation and Q&A. Please confirm your attendance with the Session Chair at least 10 minutes before the session.

Timing

Please ensure your check the program for the exact time of your session and where your paper falls within the session.

It is recommended that all IEEE iThings/GreenCom/CPSCom/SmartData/Blockchain-2020 paper presentations use **20 minutes presentation time plus 5 minutes question time**. However, the Session Chairs will determine the exact presentation time for each paper, based on the number of presentations in each session. The Session Chairs will ensure that you do not over-run the time allocated.

Proceedings

If you are interested in reading papers during the presentations, here are the proceedings:
IEEE Blockchain:
https://conferences.computer.org/blockchainpub

IEEE iThings/GreenCom/CPSCom/SmartData
https://conferences.computer.org/ithingspub

The username and passwords will be sent to all fully registered participants separately.

Online Conference Venue

The congress will be held online via five zooms. A zoom is used for keynote. Other four zooms correspond to the four rooms, respectively, in the program. In addition to daily keynote, you can enter any room that you are interested in via the links:

Keynote: https://zoom.us/j/5976262837?pwd=M3ZJcUdLTnFWTE5ZVlcwd2czWTZrQT09
Room 1: https://zoom.us/j/6683551302?pwd=bm0ycmYwOGFqWURCajZodzlibWdBdz09
Room 2: https://zoom.us/j/8483012675?pwd=d0pqUE0yNTF4SEtpWE1FMkNScUV4Zz09
Room 3: https://zoom.us/my/zbh666?pwd=QzdPVCttckZFY2F1anM5TW52dmtCUT09
Room 4: https://zoom.us/j/6487595089?pwd=TExKZDR0clpaWVo4T0p4QmRaWHM2Zz09

It is strongly recommended to join the Keynote or your interested room via the web-based zoom (see the instruction below), especially for those who have not a zoom account yet or cannot use the zoom app for free.

After typing a link into your browser, click “Join from Your Browser” on your webpage and you will be joining the conference for free. In the event that the meeting passcode is required, please type **869833** for all above rooms.

During each presentation, you can type your question(s) in the zoom. After the presentation, the session chair will ask the questions on behalf of you.

Beyond the online congress, if you want to replay any presentation (by clicking paper tiles in the program booklet), **FIRST you should add the following ALL four workspaces:**
https://join.slack.com/t/the2020ieeecy-qvm3439/shared_invite/zt-ihv6m53b-pAz9moxtYrOZsjGChlE56g
https://join.slack.com/t/cpscom/shared_invite/zt-izdixh0w-QM5YQE9d~LgJc7B_pqWs_w
https://join.slack.com/t/the2020ieeecy-hxe5576/shared_invite/zt-irj3bii9-iT4H_6CD1mmdNPYxhFcVgw
https://join.slack.com/t/internetofthi-5vy1261/shared_invite/zt-izhktq5c-kG~2Pyow2Ji0ahBnKMpnyg

Just notice that please don’t upload any files into slack, which will squeeze out the presentations.

For any assistance, please contact ieee-cybermatics-congress-2020@googlegroups.com.

The 2020 IEEE Cybermatics Congress

Program Overview

Wednesday November 4, 2020 (Atlantic Standard Time AST)				
08:30-08:50	**Opening and Award Ceremony**			
08:50-09:35	**Keynote 1:** Enchanted by Digital Twins: Multimedia Convergence for Citizens' Well-Being **Abdulmotaleb El Saddik,** University of Ottawa, Canada. **Chaired by** Shiyan Hu, University of Southampton, UK			
09:35-10:20	**Keynote 2**: Extending Blockchains with AI for Risk Management **Raj Jain**, Washington University, USA. **Chaired by** Vojislav B. Mišić, Ryerson University, Canada			
10:20-10:30	**Break**			
Room	**Room 1**	**Room 2**	**Room 3**	**Room 4**
10:30-12:10	Blockchain-1 Security and Attacks on Blockchain (I)	Blockchain-2 Security and Attacks on Blockchain (II)	SmartData-1 Smart/Big Data Infrastructure and Systems	GreenCom-1 Optimization and Analysis in Green Computing
12:10-13:10	**Break**			
13:10-15:20	Blockchain-3 (Short Paper) Blockchain Applications	Blockchain-4 Blockchain for AI & Machine Learning Blockchain Transaction Management	SmartData-2 Smart/Big Data Processing and Analytics	GreenCom-2 Green Networking and Applications GreenCom-3 Smart Grid
15:20-15:30	**Break**			
15:30-17:10	Blockchain-5 Blockchain Applications(II)	Blockchain-6 Blockchain Performance (I)	SmartData-3 Smart/Big Data Applications (I)	iThings-1 IoT Systems and Applications(I)
17:10-17:20	**Break**			
17:20-19:30	Blockchain-7 Blockchain Applications (I)	Blockchain-8 Blockchain Performance (Short Paper)	SmartData-4 Smart/Big Data Applications (II)	iThings-2 IoT Enabling Technologies (II)

Thursday November 5, 2020 (Atlantic Standard Time AST)				
08:00-08:45	**Keynote 3:** Blockchain Technologies in the Digital Economy **Yang Xiang**, Swinburne University of Technology, Australia. **Chaired by** Kouichi Sakurai, Kyushu University, Japan			
08:45-09:30	**Keynote 4:** From Data to Concepts: A Perspective of Granular Computing **Witold Pedrycz**, University of Alberta, Edmonton, Canada. **Chaired by** Shadi Ibrahim, Inria, France			
09:30-09:40	**Break**			
Room	**Room 1**	**Room 2**	**Room 3**	**Room 4**
09:40-12:10	Blockchain-9 Smart Contract	Blockchain-10 Security and Attacks on Blockchain	iThings-3 IoT Networks and Communications (I)	iThings-4 IoT Networks and Communications (III)
12:10-13:10	**Break**			
13:10-15:40	Blockchain-11 BlockCybersec Workshop	Blockchain-12 BTPA Workshop	iThings-5 IoT Networks and Communications (II)	iThings-6 IoT Systems and Applications (III) IoT Enabling Technologies (I)
15:40-15:50	**Break**			
15:50-17:50	Blockchain-13 Consensus and Smart Contract	Blockchain-14 AI-Chain Invited Talks and Workshop (I)	iThings-7 IoT Services and Intelligence (I)	iThings-8 IoT Services and Intelligence (II)
17:50-18:00	**Break**			
18:00-19:40	Blockchain-15 Blockchain Performance (II)	Blockchain-16 AI-Chain Invited Talks and Workshop (II)	SmartData-5 Smart/Big Data Applications (III)	iThings-9 IoT Systems and Applications (II)

Friday November 6, 2020 (Atlantic Standard Time AST)				
08:30-09:15	**Keynote 5**: IoT in Healthcare: From Wearables to Diagnostic Systems **Sudip Misra**, Indian Institute of Technology Kharagpur, India. **Chaired by** Antonio Puliafito, University of Messina, Italy.			
09:15-10:00	**Keynote 6:** A New Direction for Real-time Optimization in Wireless Networks **Tom Hou,** Virginia Tech, USA. **Chaired by** Maryline Chetto, University of Nantes, France.			
10:00-10:10	**Break**			
Room	**Room 1**	**Room 2**	**Room 3**	**Room 4**
10:10-12:10	CPSCom -1 Systems & Designs	CPSCom-2 Technologies & Applications (III)	CPSCom-3 Technologies & Applications (IV)	CPSCom-4 CPSCom Data & Services (VI)
12:10-13:10	**Break**			
13:10-14:50	CPSCom-5 Technologies & Applications (V)	CPSCom-6 Technologies & Applications (I)	CPSCom-7 Technologies & Applications (VI)	CPSCom-8 Technologies & Applications (VII)
14:50-15:00	**Break**			
15:00-16:40	CPSCom-9 CPSCom Data & Services (I)	CPSCom-10 CPSCom Data & Services (II)	CPSCom-11 CPSCom Data & Services (III)	CPSCom-12 CPSCom Data & Services (IV)
16:40-16:50	**Break**			
16:50-18:30	CPSCom-13 CPSCom Data & Services (V)	CPSCom-14 Technologies & Applications (II)	CPSCom-15 Networks & Communications	

Welcome Message from the Congress Chairs

Advances in computers, information and networks are bringing a digital cyber world to our daily lives. Numerous digital things or cyber entities are generated and will reside in the cyber world. Meanwhile, countless real things in the conventional physical, social and mental worlds will possess cyber mappings or cyber components, to have a cyber existence in cyber world. Cyberization is an emerging trend forming the new cyber world and reforming conventional worlds towards cyber-enabled hyper worlds. Cybermatics is to build systematic knowledge about new phenomena, behaviours, properties and practices in the cyberspace, cyberization and cyber-enabled hyper worlds. Cybermatics is characterized by not only catching up with the human intelligence (intelligent sensing, decision making, control, etc.), but also learn from the nature-inspired attributes (dynamics, self-adaptability, energy saving, etc.).

The IEEE Cybermatics Congress originated from the 2013 World Cybermatics Congress (Beijing, China). Cybermatics 2020 in Rhodes Island is the continuation after the success of Cybermatics 2019 in Atlanta, Cybermatics 2018 in Halifax, Cybermatics 2017 in Exeter, Cybermatics 2016 in Chengdu, Cybermatics 2015 in Sydney, and Cybermatics 2014 in Taipei. IEEE Cybermatics 2020 aims to provide a high-profile platform for researchers and engineers to exchange and explore state-of-art innovations in cyber technology and their applications in physical, social and mental worlds.

The congress consists of the following 5 co-located conferences:

- The 3nd IEEE International Conference on Blockchain (Blockchain 2020)
- The 6th IEEE International Conference on Smart Data (SmartData 2020)
- The 13th IEEE International Conference on Cyber, Physical and Social Computing (CPSCom 2020)
- The 13th IEEE International Conference on Internet of Things (iThings 2020)
- The 16th IEEE International Conference on Green Computing and Communications (GreenCom 2020)

An international conference can be organized by supports and great voluntary efforts of many people and organizations. Our main responsibility is to coordinate various tasks with other willing and talented volunteers. We would like to thank all general chairs of the above 5 conferences for their successful organization and all program chairs for making the excellent four-day technical program. We also would like to express our appreciation for the excellent local team for their wonderful local arrangement and the detailed registration work. We also would like to take the opportunity to thank all the members of the organizing committee, the publicity chairs and technical program committee as well as all authors and reviewers who contributed to the conferences.

We deeply appreciate the distinguished congress keynote speakers for sharing with us their latest research advances.

Last but the least, the support from IEEE, IEEE Computer Society, IEEE System, Man and Cybernetics Society, IEEE CS Technical Committee on Scalable Computing (TCSC) and IEEE SMC Technical Committee on Cybermatics is highly appreciated.

We hope you find the congress a stimulating and exciting forum.

Jianhua Ma, Professor
Hosei University, Japan
Chair, IEEE SMC TC Cybermatics
Founding Chair, IEEE CIS SWTC
Congress Steering Chair

Laurence T. Yang, Professor, FCAE, FEIC, FIEEE
Chair, CS TC on Scalable Computing
Chair, IEEE SMC TC on Cybermatics
St Francis Xavier University, Canada
Congress Steering Chair

Congress Keynotes

Keynote: Abdulmotaleb El Saddik, University of Ottawa, Canada.

Enchanted by Digital Twins: Multimedia Convergence for Citizens' Well-Being

Keynote: Raj Jain, Washington University, USA.

Extending Blockchains with AI for Risk Management

Keynote: **Yang Xiang**, Swinburne University of Technology, Australia.

Blockchain Technologies in the Digital Economy

Keynote: Witold Pedrycz, University of Alberta, Edmonton, Canada.

From Data to Concepts: A Perspective of Granular Computing

Keynote: Sudip Misra, Indian Institute of Technology Kharagpur, India.

IoT in Healthcare: From Wearables to Diagnostic Systems

Keynote: Tom Hou, Virginia Tech, USA.

A New Direction for Real-time Optimization in Wireless Networks

The 2020 IEEE Cybermatics Congress
IEEE iThings/GreenCom/CPSCom/SmartData/Blockchain-2020

Keynote: ***Enchanted by Digital Twins: Multimedia Convergence for Citizens' Well-Being***

Abdulmotaleb El Saddik, University of Ottawa, Canada.

About the Keynote Speaker

Abdulmotaleb El Saddik is Distinguished Professor and University Research Chair in the School of Electrical Engineering and Computer Science at the University of Ottawa. He completed his Dipl-Ing. and Dr.-Ing. from the Technische Universität Darmstadt, Germany. He is the director of the Multimedia Communications research Laboratory and the Medical Devices Innovation Institute.

Dr. El Saddik is an internationally-recognized scholar who has made strong contributions to the knowledge and understanding of multimedia computing, communications and applications. He is a leading haptics expert, with global recognition for his development of new technologies for real-time multisensory-based identification of humans (biometrics), synchronization of haptics, audio and visual data, Quality of Experience models for multisensory environments, and methods that dynamically compute the confidence levels of sensory data in a collaborative environment. His work looks toward the establishment of Digital Twins using AI, AR/VR and Tactile Internet that allow people to interact in real-time with one another as well as with their digital representation. He has been extremely productive of high-quality research and impact. He is the author of more than 550 peer-reviewed articles and five patents. He is senior Associate Editor of the ACM Transactions on Multimedia Computing, Communications and Applications (ACM TOMM), and IEEE Multimedia (IEEE MM), and Guest Editor for several IEEE Transactions and Journals. He is the author of the book Haptics Technologies: Bringing Touch to Multimedia.

He received 7 Best Paper Awards for peer-reviewed, published articles. He has obtained research grants and contracts totaling more than $20 M. He has supervised more than 120 researchers and received several international awards including the Friedrich Wilhelm Bessel Award from the German Humboldt Foundation and the IEEE Instrumentation and Measurement Society Technical Achievement Award, ACM Distinguished Scientist, IEEE I&M Technical Achievement Award, IEEE Canada C.C. Gotlieb (Computer) Medal and A.G.L. McNaughton Gold Medal for important contributions to the field of computer engineering and science.

He is a fellow of Royal Society of Canada, IEEE, Engineering Institute of Canada and Canadian Academy of Engineering.

Summary:

A digital twin is a digital replication of a living or non-living physical entity. By bridging the physical and the virtual worlds, data is transmitted seamlessly allowing the virtual entity to exist simultaneously with the physical entity. A digital twin facilitates the means to monitor, understand, and optimize the functions of the physical entity and provides continuous feedback to improve quality of life and wellbeing of citizens in smart cities. In this talk, we will discuss the convergence of multimedia technologies (AR/VR, AI, IoT, BigMM Data and 5G-Tactile Internet) towards the digital twin for health care. We will conclude by describing the challenges and the open research questions.

The 2020 IEEE Cybermatics Congress
IEEE iThings/GreenCom/CPSCom/SmartData/Blockchain-2020

Keynote: *Extending Blockchains with AI for Risk Management*

Raj Jain, Washington University, USA.

About the Keynote Speaker

S Raj Jain is currently the Barbara J. and Jerome R. Cox, Jr., Professor of Computer Science and Engineering at Washington University in St. Louis. Dr. Jain is a Life Fellow of IEEE, a Fellow of ACM, a Fellow of AAAS, a recipient of the 2018 James B. Eads Award from St. Louis Academy of Science, 2017 ACM SIGCOMM Life-Time Achievement Award. Previously, he was one of the Co-founders of Nayna Networks, Inc., a Senior Consulting Engineer at Digital Equipment Corporation in Littleton, Mass, and then a professor of Computer and Information Sciences at Ohio State University in Columbus, Ohio. With 34,000+ citations, according to Google Scholar, he is one of the highly cited authors in computer science. Further information is at http://www.cse.wustl.edu/~jain/.

Summary:

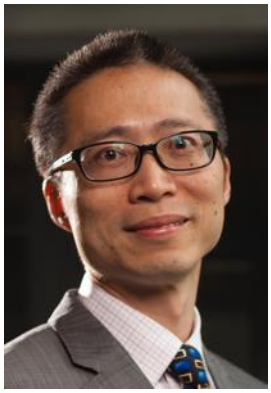
Blockchains has found numerous applications in Fintech, Supply chains, and contracts because it is an ideal distributed consensus where all nodes agree on the validity of transactions in a block without needing a central trusted party. The consensus is binary - agree or disagree - True or False. In this era of big data, we need to move blockchains beyond data storage to provide knowledge. In the real world, there are many situations in which various participants may not fully agree, and their opinions may be probabilistic, leading to probabilistic agreements. In this talk, Prof. Jain will present recent extensions using AI that allow blockchains to be used for group decisions that may not be binary. These extensions enable blockchains to be used for group decision making and risk management when the group sizes are large, and group members may want to remain anonymous. In particular, Prof. Jain will describe numerous use cases of this idea. Such situations frequently arise in network security and risky investments.

The 2020 IEEE Cybermatics Congress
IEEE iThings/GreenCom/CPSCom/SmartData/Blockchain-2020

Keynote: *Blockchain Technologies in the Digital Economy*

Yang Xiang, Swinburne University of Technology, Australia.

About the Keynote Speaker



Professor Yang Xiang received his PhD in Computer Science from Deakin University, Australia. He is currently a full professor and the Dean of Digital Research & Innovation Capability Platform, Swinburne University of Technology, Australia. His research interests include cyber security, which covers network and system security, data analytics, distributed systems, and networking. He is also leading the Blockchain initiatives at Swinburne. In the past 20 years, he has published more than 300 research papers in many international journals and conferences. He is the Editor-in-Chief of the SpringerBriefs on Cyber Security Systems and Networks. He serves as the Associate Editor of IEEE Transactions on Dependable and Secure Computing, IEEE Internet of Things Journal, and ACM Computing Surveys. He served as the Associate Editor of IEEE Transactions on Computers and IEEE Transactions on Parallel and Distributed Systems. He is a Fellow of the IEEE.

Summary:

The digital transformation of our economy moves at the speed of trust. When we make a contactless payment or access government services online, we trust that the underlying transaction system protects our property, security, and privacy - there are safeguards in place. These safeguards, in the form of technological tools and government regulations, are increasingly under pressure. So, how can we harness the benefits of digital transformation and new technologies, while preserving security and trust? In my view, a long-term R&D effort in blockchain is fundamentally important. We need to collaborate with, and drive immediate outcomes for, business, government, and the community. In this talk, I will share my experience on the blockchain technologies that build and preserve trust in the digital transactions that underpin our economy and society. Effectiveness, efficiency, security, and privacy aspects of the blockchain architecture, systems, components, and mechanisms will be discussed.

Keynote: From Data to Concepts: A Perspective of Granular Computing

Witold Pedrycz, University of Alberta, Edmonton, Canada.

About the Keynote Speaker

S. Witold Pedrycz (IEEE Fellow, 1998) is Professor and Canada Research Chair (CRC) in Computational Intelligence in the Department of Electrical and Computer Engineering, University of Alberta, Edmonton, Canada. He is also with the Systems Research Institute of the Polish Academy of Sciences, Warsaw, Poland. In 2009 Dr. Pedrycz was elected a foreign member of the Polish Academy of Sciences. In 2012 he was elected a Fellow of the Royal Society of Canada. In 2007 he received a prestigious Norbert Wiener award from the IEEE Systems, Man, and Cybernetics Society. He is a recipient of the IEEE Canada Computer Engineering Medal, a Cajastur Prize for Soft Computing from the European Centre for Soft Computing, a Killam Prize, a Fuzzy Pioneer Award from the IEEE Computational Intelligence Society, and 2019 Meritorious Service Award from the IEEE Systems Man and Cybernetics Society.

His main research directions involve Computational Intelligence, fuzzy modeling and Granular Computing, knowledge discovery and data science, pattern recognition, data science, knowledge-based neural networks, and control engineering. He has published numerous papers in these areas; the current h-index is 114 (Google Scholar) and 87 on the list top-h scientists for computer science and electronics http://www.guide2research.com/scientists/. He is also an author of 21 research monographs and edited volumes covering various aspects of Computational Intelligence, data mining, and Software Engineering.

Dr. Pedrycz is vigorously involved in editorial activities. He is an Editor-in-Chief of Information Sciences, Editor-in-Chief of WIREs Data Mining and Knowledge Discovery (Wiley), and Co-editor-in-Chief of Int. J. of Granular Computing (Springer) and J. of Data Information and Management (Springer). He serves on an Advisory Board of IEEE Transactions on Fuzzy Systems and is a member of a number of editorial boards of international journals.

Summary:

Data are omnipresent. We advocate that to efficiently transform data to knowledge to be used next in a slew of applications in system modeling, decision making, control, and classification, they need to be dealt with at a certain level of abstraction. This, in turn, gives rise to interpretable concepts. Information granules offer a conceptual and algorithmic setting where the data can be conceptualized in a sound and efficient manner. The level of abstraction itself is implied by the nature of the problem under discussion.

We demonstrate that interpretability comes hand in hand with several key requirements including a level of abstraction of the findings, their stability and efficient ways used to accommodate domain knowledge usually being associated with logic-driven blueprint of data. We offer a formal formulation of the transformation problem, propose some performance indexes of information granules and show interrelationships among the requirements identified above.

As clustering has been one among central conceptual pursuits of data analytics, we position a general discussion in a close association with clusters sought as information granules and their interpretation. The general scheme composed of phases: data—clusters—information granules-linguistic summarization is discussed vis-à-vis increasing levels of abstraction arising in the consecutive steps of the scheme. We move beyond data-focused clustering mechanisms by bringing mechanisms of knowledge-oriented clustering where data intensive algorithms are seamlessly combined with crucial pieces of domain knowledge. A new class of reference-driven clustering algorithms is developed in which key results are expressed and quantified in terms of semantically sound and user-supplied landmarks. We carefully investigate generative and discriminative aspects of information granules supporting their further usage in the formation of granular constructs.

***Keynote:* IoT in Healthcare: From Wearables to Diagnostic Systems**

Sudip Misra, Indian Institute of Technology Kharagpur, India.

About the Keynote Speaker

Dr. Sudip Misra is a Professor and Abdul Kalam Technology Innovation National Fellow in the Department of Computer Science and Engineering at the Indian Institute of Technology Kharagpur. He received his Ph.D. degree in Computer Science from Carleton University, in Ottawa, Canada. His current research interests include Wireless Sensor Networks and Internet of Things. Professor Misra has published over 350 scholarly research papers and 12 books. He has won nine research paper awards in different conferences. He was awarded the IEEE ComSoc Asia Pacific Outstanding Young Researcher Award at IEEE GLOBECOM 2012, California, USA. He was also the recipient of several academic awards and fellowships such as the Faculty Excellence Award (IIT Kharagpur), Young Scientist Award (National Academy of Sciences, India), Young Systems Scientist Award (Systems Society of India), Young Engineers Award (Institution of Engineers, India), (Canadian) Governor General's Academic Gold Medal at Carleton University, the University Outstanding Graduate Student Award in the Doctoral level at Carleton University and the National Academy of Sciences, India – Swarna Jayanti Puraskar (Golden Jubilee Award), Samsung Innovation Awards-2014 at IIT Kharagpur, IETE-Biman Behari Sen Memorial Award-2014, and the Careers360 Outstanding Faculty Award in Computer Science for the year 2018 from the Honourable Minister for Human Resource Development (MHRD) of India. Thrice consecutively he was the recipient of the IEEE Systems Journal Best Paper Award in 2018, 2019, and 2020. He was awarded the Canadian Government's prestigious NSERC Post Doctoral Fellowship and the Alexander von Humboldt Research Fellowship in Germany. His team received the GYTI Award 2018 in the hands of the President of India for socially relevant innovations.

Dr. Misra has been serving as the Associate Editor of different journals such as the IEEE Transactions on Mobile Computing, IEEE Transactions on Vehicular Technology, IEEE Transactions on Sustainable Computing, IEEE Network, and IEEE Systems Journal. He is the Fellow of the National Academy of Sciences (NASI), India, Indian National Academy of Engineering (INAE), the Institution of Engineering and Technology (IET), UK, British Computer Society (BCS), UK, Royal Society of Public Health (RSPH), UK, and the Institution of Electronics and Telecommunications Engineering (IETE), India. Professor Misra is the distinguished lecturer of the IEEE Communications Society. He is the Director and Co-Founder of the IoT startup, SensorDrops Networks Private Limited (http://www.sensordropsnetworks.com). Further details about him are available at http://cse.iitkgp.ac.in/~smisra/.

Summary:

The introduction of IoT in healthcare has led to many advancements and added new dimensions to the traditional healthcare systems. The interactions between patients and doctors have moved beyond physical visits with the integration of IoT in the healthcare domain. Digital storage of medical data, remote health monitoring, and historical data analysis are some of the significant developments that have been accomplished in the area of healthcare. Wearable devices have played a vital role and have proved to be a game-changer in embedding IoT in healthcare. In the present scenario, wearables have witnessed growing popularity and have become a part of people's lifestyles. Wearables have enabled continuous monitoring of physiological parameters, both locally and remotely. Monitoring the elderly, children, and patients with chronic illnesses have especially benefitted with the availability of wearables. In addition to this, more complex systems for the diagnosis of diseases provide better insights into the patient's condition, which helps in early detection, faster response time, and targeted treatment. IoT-enabled healthcare connects patients from less accessible rural areas to remote healthcare professionals.

Keynote: A New Direction for Real-time Optimization in Wireless Networks

Tom Hou, Virginia Tech, USA.

About the Keynote Speaker

Tom Hou is the Bradley Distinguished Professor of Electrical and Computer Engineering at Virginia Tech, USA. He received his Ph.D. degree from NYU Tandon School of Engineering in 1998. His current research has been focused on studying and developing solutions to complex science and engineering problems arising from wireless and mobile networks. Over the years, he and his research team have been studying performance bottlenecks in different network systems and have developed innovative solutions to circumvent these bottlenecks and improve performance envelops. He and his team have successfully developed some powerful optimization techniques to advance throughput, delay, and energy performance limits across the layers of network protocol stack. Currently, he is leading his team to address real-time (on the scale of sub-millisecond or less) optimal solutions for next generation communications networks (e.g., 5G) and CPS/IoT systems. He is also interested in wireless security and privacy. He has published extensively in IEEE and ACM transactions/journals and top-tier IEEE/ACM conferences. He received eight best paper awards from IEEE and ACM. He is a co-editor of a graduate textbook entitled Cognitive Radio Communications and Networks: Principles and Practices (Academic Press/Elsevier, 2010). This book was listed as one of the Best Readings on Cognitive Radio by IEEE Communications Society. His second graduate textbook was entitled Applied Optimization Methods for Wireless Networks (Cambridge University Press in May 2014). This book was the first of its kind in terms of offering a comprehensive toolbox to solve complex optimization problems in wireless networks. He was named an IEEE Fellow in 2014 for "contributions to modeling and optimization of wireless networks"

In addition to his research activities, Prof. Hou has made substantial contributions to his professional society and research community. He was Steering Committee Chair of the IEEE INFOCOM conference (2013-2019), the highest ranked conference on computer networking per Google Scholar. He was Chair of IEEE Communications Society GLOBECOM/ICC Technical Committee (GITC) during 2016-2017. He was an elected member of the IEEE Communications Society Board of Governors (2016-2018). He is/was on the editorial boards of 12 journals and guest edited 7 journal special issues.

Summary:

A holy grail in optimization is to solve large-scale complex optimization problem (e.g., mixed integer nonlinear program (MINLP)) in real time. Such type of optimization problems is very common in wireless networks, particularly in resource allocation. Traditional, optimal (or near-optimal) solutions to these problems would take prohibitive amount of time and cannot be used as practical solutions in the field to meet real-time requirement. At best, these solutions can only be used as benchmarks to measure the performance of fast heuristics, whose performance may either be severely compromised or can hardly offer any performance guarantee. Recently, in our research on designing a proportional-fair (PF) scheduler for 5G NR, we found that the state-of-the-art GPU can be exploited to offer near-optimal solution to complex optimization problems in real time (e.g., 100 μs time scale). The key ideas in our solution design include (i) decomposing a large-scale complex optimization problem into a massive number of small and independent sub-problems; (ii) selecting a subset of sub-problems from the most promising search space through intensification and random sampling; and (iii) fitting the selected subset of problems into GPU processing cores for very simple computation. In this talk, I will share our experience in this research and show the design of GPF – a GPU-based proportional fair (PF) scheduler that can meet the ~100 μs time requirement. By implementing our proposed GPF on an off-the-shelf NVIDIA Tesla V100 GPU, we show that GPF is able to achieve near-optimal performance under 100 μs. Our experience demonstrates that a GPU-based solution has the potential to address the grand challenge of solving complex optimization problems in wireless networks in real time.

The Blockchain 2020 Technical Program

Wednesday November 4, 2020		
08:30-08:50	Opening	
08:50-09:35	Keynote 1: Abdulmotaleb El Saddik, University of Ottawa, Canada	
09:35-10:20	Keynote 2: Raj Jain, Washington University, USA	
10:20-10:30	Break	
10:30-12:10	Blockchain-1 (Room1)	Blockchain-2 (Room2)
12:10-13:10	Break	
13:10-15:20	Blockchain-3 (Room1)	Blockchain-4 (Room2)
15:20-15:30	Break	
15:30-17:10	Blockchain-5 (Room1)	Blockchain-6 (Room2)
17:10-17:20	Break	
17:20-19:30	Blockchain-7 (Room1)	Blockchain-8 (Room2)

Blockchain-1: Security and Attacks on Blockchain (I)
Session Chair: Vinod Pangracious, American University in Dubai, United Arab Emirates

1. Profiling of Malicious Users Targeting Ethereum's RPC Port Using Simple Honeypots

Kazuki Hara, Teppei Sato, Mitsuyoshi Imamura, Kazumasa Omote

2. Android-Based Cryptocurrency Wallets: Attacks and Countermeasures

Cong Li, Daojing He, Shihao Li, Sencun Zhu, Sammy Chan, Yao Cheng

3. CoinWatch: A Clone-Based Approach for Detecting Vulnerabilities in Cryptocurrencies

Qingze Hum, Wei Jin Tan, Shi Ying Tey, Latasha Lenus, Ivan Homoliak, Yun Lin, Jun Sun

4. Verity: Blockchain Based Framework to Detect Insider Attacks in DBMS

Shubham Sahai, Medha Are, Shubham Sharma, Rahul Gupta, Sandeep K. Shukla

Blockchain-2: Security and Attacks on Blockchain (II)
Session Chair: Artem Barger, IBM, Israel

1. Analysing the Benefit of Selfish Mining with Multiple Players

Shiquan Zhang, Kaiwen Zhang, Bettina Kemme

2. CoVer: Collaborative Light-Node-Only Verification and Data Availability for Blockchains

Steven Cao, Swanand Kadhe, Kannan Ramchandran

3. Trusted Data Notifications from Private Blockchains

Dushyant Behl, Palanivel Kodeswaran, Venkatraman Ramakrishna, Sayandeep Sen, Dhinakaran Vinayagamurthy

4. Variance: Secure Two-Party Protocol for Efficient Asset Comparison in Bitcoin

Joshua Holmes, Gaby G. Dagher

Blockchain-3: Blockchain Applications (Short Paper)
Session Chair: Anang Amin, Higher Colleges of Technology, United Arab Emirates

1. Secure Distributed Network Model to Store Vehicle Transaction Records Through Blockchain Platform

Juan Carlos López Pimentel, Miguel Alcaraz Rivera

2. Reliable, Fair and Decentralized Marketplace for Content Sharing Using Blockchain

Prabal Banerjee, Chander Govindarajan, Praveen Jayachandran, Sushmita Ruj

3. Spot Collaborative Shipping Sans Orchestrator Using Blockchain

Kameshwaran Sampath, Sai Koti Reddy Danda, Ken Kumar, Krishnasuri Narayanam, Pankaj Dayama, Suryanarayana Sankagiri

4. A Secure Personal-Data Trading System Based on Blockchain, Trust, and Reputation

Gustavo Camilo, Gabriel Rebello, Lucas Airam de Souza, Otto Carlos Duarte

5. Blockchain Based e-Invoicing Platform for Global Trade

Krishnasuri Narayanam, Seep Goel, Abhishek Singh, Yedendra Shrinivasan, Shreya Chakraborty, Parameswaram Selvam, Vishnu Choudhary, Mudit Verma

Blockchain-4: Blockchain for AI and Machine Learning and Blockchain Transaction Management
Session Chair: Kosala Yapa Bandara, National University of Ireland, Ireland

1. BAFFLE: Blockchain Based Aggregator Free Federated Learning

Paritosh Ramanan, Kiyoshi Nakayama

2. Blockchain-Based Platform for Trusted Collaborations on Data and AI Models

Kalapriya Kannan, Abhishek Singh, Mudit Verma, Praveen Jayachandran, Sameep Mehta

3. DFedForest: Decentralized Federated Forest

Lucas Airam de Souza, Gabriel Rebello, Gustavo Camilo, Lucas Guimarães, Otto Carlos Duarte

4. On Blockchain Metatransactions

István Andras Seres

5. Enrichment of Blockchain Transaction Management with Semantic Triples

Kosala Yapa Bandara, Subhasis Thakur, John Breslin

6. Improving Bitcoin Transaction Propagation by Leveraging Unreachable Nodes

Federico Franzoni, Vanesa Daza

Blockchain-5: Blockchain Applications (II)
Session Chair: Konstantinos Votis, Centre for Research and Technology Hellas, Greece

1. EDISON: A Blockchain-Based Secure and Auditable Orchestration Framework for Multi-domain Software Defined Networks

Chandrasekar Balachandran, Puneet A.C., Gowri Ramachandran, Bhaskar Krishnamachari

2. WhistleBlower: Towards A Decentralized and Open Platform for Spotting Fake News

Gowri Ramachandran, Daniel Nemeth, David Neville, Dimitrii Zhelezov, Ahmet Yalçin, Oliver Fohrmann, Bhaskar Krishnamachari

3. A Fully Decentralized Infrastructure for Subscription-Based IoT Data Trading

Ching-Hua Lin, Ching-Chun Huang, Yang-Hao Yuan, Zih-shiuan Yuan

4. A Blockchain Using Proof-of-Download

Felipe Z N. Costa, Ruy J. G. B. de Queiroz

Blockchain-6: Blockchain Performance (I)
Session Chair: Laura Ricci, University of Pisa, Italy

1. ETH Relay: A Cost-Efficient Relay for Ethereum-Based Blockchains

Philipp Frauenthaler, Marten Sigwart, Christof Spanring, Stefan Schulte

2. Quantitatively Analyzing Relay Networks in Bitcoin

Kai Otsuki, Ryohei Banno, Kazuyuki Shudo

3. PiChu: Accelerating Block Broadcasting in Blockchain Networks with Pipelining and Chunking

Kaushik Ayinala, Baek-Young Choi, Sejun Song

Blockchain-7: Blockchain Applications (I)
Session Chair: Zhiming Zhao, University of Amsterdam, the Netherlands

1. A Blockchain-based Testing Approach for Collaborative Software Development (Invited Paper)

Stephen S. Yau, Jinal S. Patel

2. BlockRobot: Increasing Privacy in Human Robot Interaction by Using Blockchain

Viktor Vasylkovskyi, Sérgio Guerreiro, Joao S Sequeira

3. Decentralized Device Authentication Model Using the Trust Score and Blockchain Technology for Dynamic Networks

Venkatesan Subramanian, Yuvaraj Rajendra, Shubham Sahai, Sandeep Kumar Shukla

4. Blockchain and off-Chain: A Solution for Audit Issues in Supply Chain Systems

Juan Carlos López Pimentel, Omar Rojas, Raúl Monroy

5. Enabling Privacy and Traceability in Supply Chains Using Blockchain and Zero Knowledge Proofs

Shubham Sahai, Nitin Singh, Pankaj Dayama

Blockchain-8: Blockchain Performance (SHORT PAPER)
Session Chair: Gang Wang, University of Connecticut, USA

1. Local Pooling of Connected Supernodes in Lightening Networks for Blockchains

Jie Wu, Suhan Jiang

2. Cost Fairness for Blockchain-Based Two-Party Exchange Protocols

Matthias Lohr, Benjamin Schlosser, Jan Jürjens, Steffen Staab

3. Fair Work Distribution on Permissioned Blockchains: A Mobile Window Based Approach

Ivan Malakhov, Andrea Marin, Sabina Rossi, Daria Smuseva

4. RandChain: Practical Scalable Decentralized Randomness Attested by Blockchain

Gang Wang, Mark Nixon

5. Proof of Evolution: Leveraging Blockchain Mining for a Cooperative Execution of Genetic Algorithms

Francesco Bizzaro, Mauro Conti, Maria Silvia Pini

The Blockchain 2020 Technical Program

Thursday November 5, 2020		
08:00-08:45	Keynote 3: Yang Xiang, Swinburne University of Technology, Australia	
08:45-09:30	Keynote 4: Witold Pedrycz, University of Alberta, Edmonton, Canada	
09:30-09:40	Break	
09:40-12:10	Blockchain-9 (Room1)	Blockchain-10 (Room2)
12:10-13:10	Break	
13:10-15:40	Blockchain-11 (Room1)	Blockchain-12 (Room2)
15:40-15:50	Break	
15:50-17:50	Blockchain-13 (Room1)	Blockchain-14 (Room2)
17:50-18:00	Break	
18:00-19:40	Blockchain-15 (Room1)	Blockchain-16 (Room2)

Blockchain-9: Smart Contract
Session Chair: Oshani Seneviratne, Rensselaer Polytechnic Institute, USA

1. Swarm Contracts: Smart Contracts in Robotic Swarms with Varying Agent Behavior

Jonathan Grey, Isuru Godage, Oshani Seneviratne

2. Is Your Legal Contract Ambiguous? Convert to a Smart Legal Contract

Kritagya Upadhyay, Ram Dantu, Zachary Zaccagni, Syed Badruddoja

3. Characterizing Efficiency Optimizations in Solidity Smart Contracts

Tamara Brandstätter, Stefan Schulte, Jürgen Cito, Michael Borkowski

4. BCVerifier: A Tool to Verify Hyperledger Fabric Ledgers

Taku Shimosawa, Tatsuya Sato, Satoshi Oshima

5. Constant-Time Updates Using Token Mechanics

Sebastian Banescu, Martin Derka, Jan Gorzny, Sung-Shine Lee, Alex Murashkin

6. TDL-Chain: An Intelligent Data Transmission Control System in Tactical Data Link Based on Blockchain

Xuetao Yang, Yafeng Li, Liang Chen, Wei Feng, Zheng Yan

Blockchain-10: Security and Attacks on Blockchain
Session Chair: Giulio Caldarelli, University of Verona, Italy

1. Detecting Blockchain Security Threats

Benedikt Putz, Günther Pernul

2. Mining Pool Selection Problem in the Presence of Block Withholding Attack

Kentaro Fujita, Yuanyu Zhang, Masahiro Sasabe, Shoji Kasahara

3. RA: Hunting for Re-Entrancy Attacks in Ethereum Smart Contracts via Static Analysis

Yuichiro Chinen, Naoto Yanai, Jason Paul Cruz, Shingo Okamura

4. Decentralized Lightweight Detection of Eclipse Attacks on Bitcoin Clients

Bithin Alangot, Daniel Reijsbergen, Sarad Venugopalan, Pawel Szalachowski

5. An Edge Colouring-Based Collaborative Routing Protocol for Blockchain Offline Channels

Subhasis Thakur, John G. Breslin

6. Model Checking Bitcoin and Other Proof-Of-Work Consensus Protocols

Max DiGiacomo Castillo, Yiyun Liang, Advay Pal, John Mitchell

Blockchain-11: BlockCybersec Workshop
Session Chair: Konstantinos Votis, Centre for Research and Technology Hellas, Greece

1. Secured Inter-Healthcare Patient Health Records Exchange Architecture

Oluwaseyi Ajayi, Meryem Abouali, Tarek Saadawi

2. Securing Emission Data of Smart Vehicles with Blockchain and Self-Sovereign Identities

Sofia Terzi, Charalampos Savvaidis, Konstantinos Votis, Dimitrios Tzovaras, Ioannis Stamelos

3. A Distributed Biometric Authentication Scheme Based on Blockchain

Foteini Toutara, Georgios Spathoulas

4. Performance Evaluation of Different Hyperledger Sawtooth Transaction Processors for Blockchain Log Storage with Varying Workloads

Konstantinos Moschou, Anastasia Theodouli, Sofia Terzi, Konstantinos Votis, Dimitrios Tzovaras, Dimitrios Karamitros, Sotiris Diamantopoulos

5. Proxy Re-Encryption for Privacy Enhancement in Blockchain: Carpooling Use Case

Damien Zonda, Maroua Meddeb

6. A Blockchain Solution for Enhancing Cybersecurity Defence of IoT

Konstantinos M. Giannoutakis, Georgios Spathoulas, Christos K. Filelis-Papadopoulos, Anastasija Collen, Marios Anagnostopoulos, Konstantinos Votis, Niels Nijdam

Blockchain-12: BTPA Workshop
Session Chairs: Annappa Basava, National Institute of Technology Karnataka, India
Manoj Kumar MV, Nitte Meenakshi Institute of Technology, India
Likewin Thomas, PESIT-M, India

1. Reliable Collaborative Learning with Commensurate Incentive Schemes

Sandi Rahmadika, Kyung-Hyune Rhee

2. Maximizing the Time Value of Cryptocurrency in Smart Contracts with Decentralized Money Markets

Shao Ku Tien, Yu-Ting Wang, Yun-Zhan Cai, Meng-Hsun Tsai

3. Loyalty Program Using Blockchain

Osman Sonmezturk, Tolga Ayav, Yusuf M Erten

4. An Analysis of Routing Attacks Against IOTA Cryptocurrency

Pericle Perazzo, Antonio Arena, Gianluca Dini

5. Multi-Factor Authentication for Users of Non-Internet Based Applications of Blockchain-Based Platforms

Andrew Kinai, Fred Otieno, Nelson Bore, Komminist Weldemariam

6. A Quality of Service Compliance System Empowered by Smart Contracts and Oracles

Joao Paulo Brito Gonçalves, Rodolfo da Silva Villaca, Esteban Municio, Johann Marquez-Barja

Blockchain-13: Consensus and Smart Contract
Session Chair: Gang Wang, University of Connecticut, USA

1. Towards Enabling Deletion in Append-Only Blockchains to Support Data Growth Management and GDPR Compliance

Michael Kuperberg

2. Context-Based Consensus for Appendable-Block Blockchains

Roben Lunardi, Maher Alharby, Henry Cabral Nunes, Avelino Francisco Zorzo. Changyu Dong, Aad van Moorsel

3. A tool for Proving MICHELSON Smart Contracts in Why3

Luís Pedro Arrojado da Horta, João Santos Reis, Mário Pereira, Simão Melo de Sousa

4. Candidate Set Formation Policy for Mining Pools

Saulo dos Santos, Shahin Kamali, Ruppa K. Thulasiram

Blockchain-14: AI-Chain Invited Talks and Workshop (I)
Session Chairs: Olivia Choudhury, Amazon, USA
Justin D. Harris, Microsoft, Canada
Oshani Seneviratne, Rensselaer Polytechnic Institute, USA

The program on workshop website: https://ai4blockchain.github.io/#program

1. Invited Talk by Ciarán McGonagle

2. BlockConfess: Towards an Architecture for Blockchain Constraints and Forensics

Sabrina Kirrane, Claudio Di Ciccio

3. Invited Talk by Serguei Popov

Blockchain-15: Blockchain Performance (II)
Session Chair: Gang Wang, University of Connecticut, USA

1. Secure Regenerating Codes for Reducing Storage and Bootstrap Costs in Sharded Blockchains

Divija Swetha Gadiraju, V. Lalitha, Vaneet Aggarwal

2. RepShard: Reputation-Based Sharding Scheme Achieves Linearly Scaling Efficiency and Security Simultaneously

Gang Wang

3. SodsBC: Stream of Distributed Secrets for Quantum-Safe Blockchain

Shlomi Dolev, Ziyu Wang

4. On Search Friction of Route Discovery in Offchain Networks

Saar Tochner, Stefan Schmid

Blockchain-16: AI-Chain Invited Talks and Workshop (II)
Session Chairs: Olivia Choudhury, Amazon, USA
Justin D. Harris, Microsoft, Canada
Oshani Seneviratne, Rensselaer Polytechnic Institute, USA

1. Invited Talk by Heather Flannery

2. Blockchain-Orchestrated Machine Learning for Privacy Preserving Federated Learning in Electronic Health Data

Jonathan Passerat-Palmbach, Tyler Farnan, Mike McCoy, Justin Harris, Sean Manion, Heather Flannery, Bill Gleim

3. Implicit Authentication in Neural Key Exchange Based on the Randomization of the Public Blockchain

Siwan Noh, Kyung-Hyune Rhee

The SmartData 2020 Technical Program

Wednesday November 4, 2020	
08:30-08:50	Opening
08:50-09:35	Keynote 1: Abdulmotaleb El Saddik, University of Ottawa, Canada
09:35-10:20	Keynote 2: Raj Jain, Washington University, USA
10:20-10:30	Break
10:30-12:10	SmartData-1 (Room3)
12:10-13:10	Break
13:10-15:20	SmartData-2 (Room3)
15:20-15:30	Break
15:30-17:10	SmartData-3 (Room3)
17:10-17:20	Break
17:20-19:30	SmartData-4 (Room3)

SmartData-1: Smart/Big Data Infrastructure and Systems
Session Chair: Chao Yin, Jiujiang University, China

1. A Fuzzy Fan Speed Controller for Smart Data Processing Device

Juntao Ding, Weihong Liu, Zongwei Zhu, Renyu Zhang, Jing Cao, Gangyong Jia

2. Bandwidth-Aware Rescheduling Mechanism in SDN-based Data Center Networks

Ming-Chin Chuang, Chiajui Hung, Chao-Lin Chen

3. A Cascade Collaborative Offloading Framework for Video Analytics Based on Online Learning

Yuanlin li, Bin luo, Yuzhe Zhang, Zhenchuan Sun, Yunpeng Liu

4. An Optimization Method for Resource Allocation in Fog Computing

Chao Yin, Tongfang Li, Xiaoping Qu, Sihao Yuan

SmartData-2: Smart/Big Data Processing and Analytics
Session Chair: Aida Mehdipour Pirbazari, University of Stavanger, Norway

1. Fault Detection and Diagnosis of Chillers with S&D Convolutional Neural Network

Xueteng Sun, Ke Yan, Xiaokang Zhou

2. Imbalanced Encrypted Traffic Classification Scheme Using Random Forest

Feng Zhang, Tao Shang, Jianwei Liu

3. Improving Load Forecast Accuracy of Households Using Load Disaggregation Techniques

Aida Mehdipour Pirbazari, Mina Farmanbar, Antorweep Chakravorty, Chunming Rong

SmartData-3: Smart/Big Data Applications I
Session Chair: Anish Jindal, University of Essex, UK

1. Machine Learning Recognition of Gait Identity via Shoe Embedded Accelerometer

Silvia Strada, Jacopo Paris, Fabio Piccoli, Davide Pietro Tucci, Patrizia Casali, Sergio Savaresi

2. Learning the Min-max Gait Comfort Region When Wearing Shoes

Silvia Strada, D. Penati, P. Ćorović, C. F. O. da Silva, V. Gabbi, P. Casali, S. M. Savaresi

3. Leveraging Walking Inertial Pattern for Terrain Classification

Silvia Strada, A. Ghezzi, L. Marasco, E. Paracampo, G. Rizzetto, P. Casali, S. M. Savaresi

4. Grape Leaf Disease Detection and Classification Using Machine Learning

Zhaohua Huang, Ally Qin, Jingshu Lu, Aparna Menon, Jerry Gao

SmartData-4: Smart/Big Data Applications II
Session Chair: Yunpeng Liu, Wuhan Flyminer Science and Technology Co. Ltd, China

1. Hemp Disease Detection and Classification Using Machine Learning

Jing Zhu, Sen Zheng, Chenguang Niu, Jerry Gao, Jerome Tang

2. Analysing Social Behavioural Patterns for Students Who Partake in Sports-related Activities Using Wi-Fi Data

Christopher Gerard Wei Hong Toh, Seanglidet Yean, Bu Sung Lee, Anthony Koh

3. A Flexible Personalized Topic Query Scheme

Zhixing Lu, Zongmin Cui, Lihua Wang, Xiao Yang, XiaoLei Lv

4. Deep Reinforcement Learning Based Reliability Pricing Strategy in Electricity Spot Market

Menjun Li, Hua Liu, Teng Luo, Yunpeng Liu, Xiang Li

The SmartData 2020 Technical Program

Thursday November 5, 2020		
08:00-08:45	Keynote 3: Yang Xiang, Swinburne University of Technology, Australia	
08:45-09:30	Keynote 4: Witold Pedrycz University of Alberta, Edmonton, Canada	
09:30-09:40	Break	
09:40-12:10		
12:10-13:10	Break	
13:10-15:40		
15:40-15:50	Break	
15:50-17:50		
17:50-18:00	Break	
18:00-19:40	SmartData-5 (Room 3)	

SmartData-5: Smart/Big Data Applications III
Session Chair: Fangming Zhong, Dalian University of Technology, China

1. The Evolutionary Deep Learning Model for Electrical Load Forecasting

Fei Peng, Dan Li, Tianyu An, Hanjun Wang, Changyi Tian, Zhikui Chen

2. Energy Supply Forecasting of Wind Power for Agricultural Integrated Energy System

Fei Peng, Tianyu An, Qingdong Meng, Hanjun Wang, Yong Xiang, Zhikui Chen

3. Breast Cancer Image Classification Based on CNN classifier

Guoming Chen, Zeduo Yuan, Qiang Chen, Wanyi Li, Shun Long

4. An Efficient Hybrid Approach for Brain Tumor Detection in MR Images using Hadoop-MapReduce

Prabhjot Kaur Chahal, Shreelekha Pandey

The GreenCom 2020 Technical Program

Wednesday November 4, 2020	
08:30-08:50	Opening
08:50-09:35	Keynote 1: Abdulmotaleb El Saddik, University of Ottawa, Canada
09:35-10:20	Keynote 2: Raj Jain, Washington University, USA
10:20-10:30	Break
10:30-12:10	GreenCom-1 (Room 4)
12:10-13:10	Break
13:10-15:20	GreenCom-2/GreenCom-3 (Room 4)
15:20-19:30	Break

GreenCom-1: Optimization and Analysis in Green Computing
Session Chair: Minghua Wang, University of South China, China

1. Energy-aware Aperiodic Task Servers for Firm Real-time Energy Harvesting Systems

Audrey Queudet, Maryline Chetto

2. A New State Evaluation Algorithm for Rail Transit Power Supply System

Jiajian Wang, Hu Liu, Zhiqun Pan, Weilong Wang, Lulu Zhang, Zilong Liu

3. Energy-efficient Inference Service of Transformer-based Deep Learning Models on GPUs

Yuxin Wang, Qiang Wang, Xiaowen Chu

4. Integrating Pre-Cooling of Data Center Operated with Renewable Energies

Maël Madon, Jean-Marc Pierson

GreenCom-2: Green Networking and Applications
Session Chair: Bhupesh Kumar Mishra, University of Bradford, UK

1. Real-time Personalized Energy Saving Recommendations

Christos Sardianos, Christos Chronis, Iraklis Varlamis, George Dimitrakopoulos, Yassine Himeur, Abdullah Alsalemi; Faycal Bensaali, Abbes Amira

2. activIn: A novel Non-Intrusive Activity Inference Tool

Asimina Dimara, Stelios Krinidis, Dimitrios Tzovaras

3. Multi-Robot-Assisted Confident Information Coverage Hole Repairing Algorithm in WSNs

Kaiwu Jiang, Minghua Wang, Chenxuan Zhai, Yan Wang, Chao Wang, Bo Fan

4. Performance of Cooperative Relayed NOMA with Energy Harvesting Nodes in Underlay Networks

Garima Singhal, Shashi Bhushan Kotwal, Sudhakar Modem, Shankar Prakriya

5. OccupI: A novel Non-Intrusive Occupancy Inference Tool

Asimina Dimara, Stelios Krinidis, Dimitrios Tzovaras

GreenCom-3: Smart Grid
Session Chair: GaganGeet Singh Aujla, Newcastle University, UK

1. Comparative Study of Short-Tterm Electricity Price Forecasting Models to Optimise Battery Consumption

Vjosa Preniqi, Dhavalkumar Thakker, Erich Feig, Geev Mokryani, Amr Abdullatif, Savas Konur

2. Decentral Load Control for Data Centers

Felix Uster, Franz Plocksties, Dirk Timmermann

3. Deep Reinforcement Learning and Blockchain for Peer-to-Peer Energy Trading among Microgrids

Ye Xu, Liang Yu, Gang Bi, Meng Zhang, Chao Shen

The iThings 2020 Technical Program

Wednesday November 4, 2020	
08:30-08:50	Opening
08:50-09:35	Keynote 1: Abdulmotaleb El Saddik, University of Ottawa, Canada
09:35-10:20	Keynote 2: Raj Jain, Washington University, USA
10:20-10:30	Break
10:30-12:10	
12:10-13:10	Break
13:10-15:20	
15:20-15:30	Break
15:30-17:10	iThings-1 IoT Systems and Applications(I) (Room 4)
17:10-17:20	Break
17:20-19:30	iThings-2 IoT Enabling Technologies (II) (Room 4)

iThings-1: IoT Systems and Applications I
Session Chair: Junyu Lu, Sichuan University, China

1. A Hierarchical Automata Based Approach for Anomaly Detection in Smart Home Devices

Kai Kang, Lijie Xu, Wei Wang, Guoquan Wu, Jun Wei, Wei Shi, Jizhong Li

2. Behavioral Model based Trust Management design for IoT at Scale

Brennan Huber, Farah Kandah

3. A Stochastic-Based Reliability Calculation Method for RTL Circuits

Jie Xiao, Qiou Ji, Ziwen Sun, Yujiao Huang, Jungang Lou

4. Cross-level Feature Aggregation and Fusion Network for Light Field Salient Object Detection

Anzhi Wang, Weihua Ou, Yun Liu, Chunhong Ren

5. Physical-Layer Cooperative Key Generation with Correlated Eavesdropping Channels in IoT

Peng Xu, Dongyang Hu, Gaojie Chen

iThings-2: IoT Enabling Technologies II
Session Chair: Abderrahim Benslimane, University of Avignon & LIA/CERI, France

1. Enhanced Knowledge Inference and Reasoning with New IP

Lijun Dong, Richard Li

2. Joint Hybrid Precoding Scheme with Low Complexity for Single-user Massive MIMO Systems

Shiguo Wang, Mingyue He, Yongjian Zhang, Xinlei Wang

3. Algorithm for Determining Number of Clusters based on Dichotomy

Xu Zhuang, Yue Yin, Haitao Chen, He Xu, Peng Li

4. Anomaly Detection based on Feature Correlation and Influence Degree in SDN

Jiajia Qin, Peng Li, Xun Zhang

5. Detection Algorithm Based Deep Learning for the Multi-user NOMA-MIMO System

Xie Wenwu, Jian Xiao, Xin Peng

The iThings 2020 Technical Program

Thursday November 5, 2020		
08:00-08:45	Keynote 3: Yang Xiang, Swinburne University of Technology, Australia	
08:45-09:30	Keynote 4: Witold Pedrycz, University of Alberta, Edmonton, Canada	
09:30-09:40	Break	
09:40-12:10	iThings-3 (Room 3)	iThings-4 (Room 4)
12:10-13:10	Break	
13:10-15:40	iThings-5 (Room 3)	iThings-6 (Room 4)
15:40-15:50	Break	
15:50-17:50	iThings-7 (Room 3)	iThings-8 (Room 4)
17:50-18:00	Break	
18:00-19:40		iThings-9 (Room 4)

iThings-3: IoT Networks and Communications I
Session Chair: Yinxue Yi, Chongqing University of Posts and Telecommunications, China

1. Security, Privacy and Ethical Concerns of IoT Implementations in Hospitality Domain

Suat Mercan, Kemal Akkaya, Lisa Cain, John Thomas

2. Prediction of diabetes using Multi-type data

Zhengcai Li, Mingtao Guo, Jinhai Fang, He Xu, Peng Li

3. Fast Monte Carlo Method to Simulate Atmospheric Backscattering of Wireless Laser Sensor Network

Yunzhi Xia; Xiao Tang; Chan Wu; Chunbo Ma; Jun Ao

4. MQTT-Based Surveillance System of IoT Using UWB Real Time Location System

Zakaria Kasmi, Abdelmoumen Norrdine, Christoph Motzko, Jochen Schiller, Kashan Ahmed

5. Abnormal Road Surface Detection Based on Smart Phone Acceleration Sensor and Crowdsourcing

Gang Qiu, Ronghua Du, Kai Gao, Lin Hu, Li Liu

6. Blockchain-based Secure and Reliable Manufacturing System

Shahriar Badsha, Shamik Sengupta, Arpan Bhattacharjee

iThings-4 IoT Networks and Communications III
Session Chair: Jiaoyan Chen, Nanchang University, China

1. A Feature Selection Algorithm for Multilayer Perceptron based on Simultaneous Two-sample

Shudong Liu, Ke Zhang, Xu Chen

2. Internet of Things based Construction Monitoring and Health Monitoring of High-pier Long-span Continuous Rigid Frame Bridge

Hengshan Wu, Yuhang Liu Liu, Chan Wu, Yuan Zhang

3. Adversarial Domain Adaptation for Crisis Data Classification on Social Media

Qi Chen, Wei Wang, Kaizhu Huang, Suparna De, Frans Coenen

4. On the Development of a Resident Monitoring System: Usability, Privacy and Security Aspects

Pascal Bruegger, *Adriana Wilde*

5. Cloud Platform Performance Evaluation Using Multi-level Execution Tracing

Yves J. Bationo, Naser Ezzati-Jivan, Evan Galea, Michel Dagenais

6. Wi-mix: A Pedestrian Track Tracking Method Combining PDR and Wi-Fi signal

Zhanjun Hao, Lihua Yan, Jianwu Dang, Lei Bai

iThings-5: IoT Networks and Communications II
Session Chair: Lingzhi Yi, University of South China, China

1. Flood Prediction Using IoT and Artificial Neural Networks with Edge Computing

Eric Samikwa, Thiemo Voigt, Joakim Eriksson

2. Low-Power Modular Multi-sensor Node with ZeSCIP Analog Frontend

Marcel Jotschke, Harsha Prabakaran, Torsten Reich

3. A Contract-Based Incentive Mechanism for Traffic Offloading in Two-Tier Heterogeneous Networks

Nan Zhao, Huiwen Tan, Zehua Liu

4. Robust Speaker Identification of IoT based on Stacked Sparse Denoising Auto-Encoders

Zhifeng Wang, Surong Duan, Chunyan Zeng, Xinguo Yu, Yang Yang, Helin Wu

5. Image Reconstruction of IoT based on Parallel CNN

Zhifeng Wang, Chunyan Zeng, Zhenghui Wang

6. A Semi-supervised Dynamic Ensemble Algorithm for IoT Anomaly Detection

Shudong Liu, Xiping Hao, Xu Chen

iThings-6 IoT IoT Systems and Applications III + IoT Enabling Technologies I
Session Chair: Xianjun Deng, St. Francis Xavier University, Canada & University of South China, China

1. Driving Intention Oriented Real-time Energy Management Strategy for PHEV in Urban V2X Scenario

Jin Xie, Kai Gao, Feng Zhou, Lin Hu, Zhengfa Zhu, Ronghua Du

2. A Switching Offloading Mechanism for Path Planning and Localization in Robotic Applications

Dimitrios Spatharakis, Marios Avgeris, Nikolaos Athanasopoulos, Dimitrios Dechouniotis, Symeon Papavassiliou

3. Independent Credible: Secure Communication Architecture of Android Devices based on TrustZone

Yichuan Wang, Wen Gao, Xinhong Hei, Mungwarama Irenee, Ju Ren

4. WiFi-based Device-free Vehicle Speed Measurement Using Fast Phase Correction MUSIC Algorithm

Shuo Li, Yunfei Ma, Xin Gu, Yunsheng Fan, Pingping Wang, Yao Lu, Bowen Liu

5. Distributed Packets Scheduling Technique for Cognitive Radio Internet of Things Based on Discrete Permutation Particle Swarm Optimization

Dina Tarek, Abderrahim Benslimane, Gamal Darwish, Amira Kotb

6. Multi-area Path Planning for Wireless Sensor Networks Based on Double Populations Ant Colony Optimization Algorithm

Chenxuan Zhai, Minghua Wang, Kaiwu Jiang, Yan Wang, Bo Fan, Chao Wang

7. An Internet of Things based Transportation Cart for Smart Construction Site

Abdelmoumen Norrdine, Christoph Motzko

iThings-7: IoT Services and Intelligence I
Session Chair: Lucia Lo Bello, University of Catania, Italy

1. Toward Automated Smart Ships: Designing Effective Cyber Risk Management

Keisuke Furumoto, Antti Kolehmainen, Bilhanan Silverajan, Takeshi Takahashi, Daisuke Inoue, Koji Nakao

2. Attention-based Hierarchical Convolution Neural Network for Fine-grained Crop Image Classification

Jiannan Yang, Fan Zhang, Tiantian Qian

3. A Stack4Things-Based Web of Things Architecture

Zakaria Benomar, Francesco Longo, Giovanni Merlino, Antonio Puliafito

iThings-8: IoT Services and Intelligence II
Session Chair: Symeon Papavassiliou, ICCS/National Technical University of Athens, Greece

1. Anomaly Detection Using Spatio-Temporal Correlation and Information Entropy in Wireless Sensor Networks

Lingqiang Chen, Li Xu, Guanghui Li

2. Wheat Yield Forecasting Using Regression Algorithms and Neural Network

Cheng Dai, Yinqin Huang, Minghao Ni, Xingang Liu

3. Multicast Traffic Throughput Maximization through Dynamic Modulation and Coding Scheme Assignment in Wireless Sensor Networks

Bartłomiej Ostrowski, Michal Pióro, Artur Tomaszewski

iThings-9: IoT Systems and Applications II
Session Chair: Gaojie Chen, University of Leicester, UK

1. Trusted Anonymous Authentication for Vehicular Cyber-Physical Systems

Mingyue Zhang, Junlong Zhou, Kun Cao, Shiyan Hu

2. Semantic Descriptor for Intelligence Services

Edgar Ramos, Timon Schneider, Marie-J. Montpetit, Ben De Meester

3. Industry 4.0 Synoptics Controlled by IoT Applications in Node-RED

Claudio Badii, Pierfrancesco Bellini, Daniele Cenni, Nicola Mitolo, Paolo Nesi, Gianni Pantaleo, Mirco Soderi

4. Visual Analysis and Exploration of COVID-19 based on Multi-source Heterogeneous Data

Yun Zhou, Hu He, Jieqi Rong, Yun Cheng, Wei Zhong, Yongchang Li, Fu Jiang

The CPSCom 2020 Technical Program

Friday November 6, 2020				
08:30-09:15	Keynote 5: Sudip Misra, Indian Institute of Technology Kharagpur, India.			
09:15-10:00	Keynote 6: Tom Hou, Virginia Tech, USA.			
10:00-10:10	Break			
10:10-12:10	CPSCom-1 (Room1)	CPSCom-2 (Room2)	CPSCom-3 (Room3)	CPSCom-4 (Room4)
12:10-13:10	Break			
13:10-14:50	CPSCom-5 (Room1)	CPSCom-6 (Room2)	CPSCom-7 (Room3)	CPSCom-8 (Room4)
14:50-15:00	Break			
15:00-16:40	CPSCom-9 (Room1)	CPSCom-10 (Room2)	CPSCom-11 (Room3)	CPSCom-12 (Room4)
16:40-16:50	Break			
16:50-18:30	CPSCom-13 (Room1)	CPSCom-14 (Room2)	CPSCom-15 (Room3)	

CPSCom-1: Systems & Designs
Session Chair: Binbin Huang, Hangzhou Dianzi University, China

1. Real-Time Vision-Language-Navigation based on a Lite Pre-Training Model

Jitao Huang, Bo Huang, Jin Liu, Guohui Zeng, Liangqi Zhu, Liyuan Ma, Zhicai Shi

2. Simulation Environment of Embedded Control System for Multi-Core Processor with Faster CPU Simulator

Yukikazu Nakamoto, Daichi Minami, Koji Fukuoka, Yoshitaka Koga

3. A Novel Scheme for Access Control Policy Generating and Evaluating in IoT based on Machine Learning

Yinyan Zhao, Mang Su, Jie Wan, Jinpeng Hou, Dong Mei

4. Real-Time Operating Systems for Cyber-Physical Systems: Current Status and Future Research

Liang Cheng, Anthony Serino

5. A Distributed DBSCAN Algorithm for Massive Data in Cyber Physical and Social Computing

Wei Zhang, Xiaohui Chen, Jiajun Sun, Qian Xi

CPSCom-2: Technologies & Applications III
Session Chair: Jin Sun, Nanjing University of Science and Technology, China

1. CAMDet: CAM-based Objection Detection for Non-Crowded Views from Moving IoT Devices

Yuzheng Cao, Kwei-Jay Lin, Bo-Lung Tsai, Yu Meng

2. Drug-Drug Interaction Extraction using Pre-Training Model of Enhanced Entity Information

Ang Wen, Zhenming Yuan, Xiaoyan Sun, Kai Yu, Yingfei Wu, Jia Zhang

3. Leveraging Multi-View Learning for Human Anomaly Detection in Industrial Internet of Things

Samundra Deep, Yuzhe Tian, Jianchao Lu, Yipeng Zhou, Xi Zheng

4. Sampling Workloads with Dynamic Time Scale to Promote the Energy Efficiency of Datacenters

Cheng Hu, Yi Zhou, Ruoyao Ding

CPSCom-3: Technologies & Applications IV
Session Chair: Kun Cao, Jinan University, China

1. CNN Network for Head Detection with Depth Images in Cyber-Physical Systems

Qi Wang, Hang Lei, Xiangtian Ma, Shihua Xiao, Xupeng Wang

2. Trajectory Outlier Detection Based on DBSCAN and Velocity Entropy

Wenhan Dai, Chengwei Zhang, Xiaoyan Su, Shuo Cao

3. Random Forest Based Multi-View Fighting Detection with Direction Consistency Feature Extraction

Xuehua Wang, Chuang Yao, Xiaoyan Su, Jinghua Dong, Yixuan Li

4. Efficient Reduction on Decision Implication

Can Wang, Qiang Lin, Chunming Xu, Yu Bo, Yu Wang

CPSCom-4: CPSCom Data & Services VI
Session Chair: Xu Zheng, University of Electronic Science and Technology of China, China

1. Empirical Research on Cluster Analysis of Spectral Information of Hyperspectral Remote Sensing Data

Yueyu Dong, Mingming Qin, Fei Dai, Zhenping Qiang, Xiaorui Wang, Xiaolong Xu

2. Application of NER and Association Rules to Traditional Chinese Medicine Patent Mining

Tianci Chen, Mengfei Luo, Hao Fu, Di Chen, Qianyi Hu, Na Deng

3. Research of Association Rules Based on Improved Ant Colony Optimization

Tianci Chen, Na Deng

4. An Ensemble of Random Decision Trees with Personalized Privacy Preservation in Edge-Cloud Computing

Xiaotong Wu, Xiaolong Xu, Fei Dai, Jiaquan Gao, Genlin Ji, Lianyong Qi

5. A Survey of Head Pose Estimation Methods

Zhenping Qiang, Xiaofeng Shao, Hong Lin, Yueyu Dong, Xiaorui Wang

CPSCom-5: Technologies & Applications V
Session Chair: Yewan Wang, Universite IMT Atlantique Pays de la Loire, France

1. Infrared and Visible Image Fusion based on Local Gradient Constraints

Guosheng Lu, Chunming He, Lei Xu, Guoxia Xu, Lizhen Deng, Jinlei Ren, Haiming Zhao

2. X-DOG: An Intelligent X-Ray-based Dangerous Goods Detection and Automatic Alarm System

Yu Shi, Yige Xu, Haoran Gao, Lai Wei, Xiaolong Xu

3. Gaussian Image Denoiser Based on Deep Convolutional Sparse Coding with Attention Mechanism

Yu Shi, Yingying Hua, Yige Xu, Haoran Gao, Zhenya Wang, Benchang Zheng

4. Misleading Sentiment Analysis: Generating Adversarial Texts by the Ensemble Word Addition Algorithm

Yushun Xie, Zhaoquan Gu, Xiaopeng Fu, Le Wang, Weihong Han, Yuexuan Wang

CPSCom-6: Technologies & Applications I
Session Chair: Di Wu, Norwegian University of Science and Technology, Norway

1. The Research on Control and Dynamic Property of Autonomous Vehicle Adaptive Lidar System

Jing Chen, Yi Lu, Hanlin Zhang, Qingrui Zhang

2. Noise Estimation-based Method for MRI Denoising with Discriminative Perceptual Architecture

Xiaorui Xu, Siyue Li, Chun Ki Franklin Au, Shutian Zhao, Taiyu Yan, Weitian Chen

3. Extending the CST: The Distributed Cognitive Toolkit

Wandemberg Gibaut, Ricardo Gudwin

4. Toward A Sustainable Cyber-Physical System Architecture for Urban Water Supply System

Di Wu, Hao Wang, Razak Seidu

CPSCom-7: Technologies & Applications VI
Session Chair: Ahmadreza Vajdi, Nanjing University of Science and Technology, China

1. Image Tampering Localization Based on Superpixel Segmentation

Weiwei Zhang, Xinhua Tang, Yurong Chen

2. Research on Reliability-Centered Maintenance Strategy of Container Terminal Shore Crane

Hanlin Zhang, Yong Li, Lin Zhang, Zelong Chen, Jing Chen

3. Sequential Recommendation with a Pre-Trained Module Learning Multi-Modal Information

Tengyue Han, Yu Tian, Jiwei Zhang, Shaozhang Niu

4. Anti-Html Evasion in Intrusion Prevention System

Feng Dong, Jia Liu, Liang Gu, Min Ma

CPSCom-8: Technologies & Applications VII
Session Chair: Yiru Zhang, University of Rennes, France

1. A Vulnerability Mining Model of Java Json Deserialization Based on AST

Yahe Kuang, Xianzhe Meng, Weiyi Han, Xiao Wang, Cheng Jiang

2. Reversible Data Hiding Algorithm with High Imperceptibility based on Histogram Shifting

Linna Zhou, Weijie Shan, Xin Tang, Bingwei Hu, Xiaomei Liu

3. An Assessment of the Usability of Machine Learning Based Tools for the Security Operations Center

Sean Oesch, Robert Bridges, Jared Smith, Justin Beaver, John Goodall, Kelly Huffer, Craig Miles, Daniel Scofield

4. Fast Fire Identification Soft-Core Package Design Based on FPGA

Yongtao Liu, Sun Ruizhi, Zhang Tianyi, Zhang Xiangnan, Li Li, Shi Guoqing

CPSCom-9: CPSCom Data & Services I
Session Chair: Zhida Li, Simon Fraser University, Canada

1. An Integrated Platform for Collaborative Data Analytics

Sean Oesch, Robert Gillen, Thomas Karnowski

2. Research on a Road Target Detection Method based on Improved YOLOv3

Chen Zhang, Qiao Meng, Zijie Sun, Yu-an Zhang, Wenzhi Wang, Shujun Yin

3. Ontology-based Automatic Semantic Annotation Method for IoT Data Resources

Lingyun Yuan, Miao Zhang, Lijing Han, Nan Chen

4. A High Capacity Text Steganography Utilizing Unicode Zero-Width Characters

Hafsat Muhammad Bashir

CPSCom-10: CPSCom Data & Services II
Session Chair: Yewan Wang, Universite IMT Atlantique Pays de la Loire, France

1. A Free Placement Approach to Upper-Limb Tracking Using Inertial Sensors

Xueyan Wu, Mingxu Sun, Haiping Mu, Qi Liu, Xuqun Pei, Bin Ning

2. A Fast Classification Approach to Upper-Limb Posture Recognition

Xueyan Wu, Yinghang Jiang, Qi Liu, Hao Wu, Xiaodong Liu

3. A Selective Model Aggregation Approach in Federated Learning for Online Anomaly Detection

Yang Qin, Hiroki Matsutani, Masaaki Kondo

4. Research and Design of Square Kilometer Array Astronomical Data Management Model Based on Fabric

Jinhua Fu, Jie Xu, Shulin Zhang, Chen Zhang

CPSCom-11: CPSCom Data & Services III
Session Chair: Yan Huang, Kennesaw State University, USA

1. Children's Drawing Psychological Analysis using Shallow Convolutional Neural Network

Yue Yuan, Jing Huang, Xiang Ma, Ke Yan

2. Multi-Source Meteorological Observation Data Quality Control Algorithm Based on Data Mining

Tao Li, Lei Wang, Yongjun Ren, Lingyun Wang, Qi Qian

3. Energy-and Time-Efficient Tasks Offloading and Dynamic Resource Allocation in Smart City

Bohai Zhao, Kai Peng, Haoqi Zhang, Xiaolong Xu

4. CAUSE: Caching Aided by User Equipment

Margarita Vitoropoulou, Konstantinos Tsitseklis, Angelos Karakoulias, Vasileios Karyotis, Symeon Papavassiliou

CPSCom-12: CPSCom Data & Services IV
Session Chair: Meng Han, Kennesaw State University, USA

1. Differentially Private Machine Learning Model against Model Extraction Attack

Zelei Cheng, Zuotian Li, Jiwei Zhang, Shuhan Zhang

2. RPCC: A Replica Placement Method to Alleviate the Replica Consistency under Dynamic Cloud

Shen Yao Sun, Xianji Wang, Fang Zuo

CPSCom-13: CPSCom Data & Services V
Session Chair: Jiaqi Wang, Penn State University, USA

1. Research of a Self-Adaptive Mixed-Variable Multi-objective Ant Colony Optimization Algorithm

Yiguang Gong, Weixue Wang, Siqi Gong

2. Variant Transfer Learning for Wood Recognition

Penggui Huang, Fan Zhao, Xiaoping Li, Zhangkang Wu, Zheng Zhu, Yanfeng Zhang

3. A Survey on Blockchain: Architecture, Applications, Challenges, and Future Trends

Jinmei Yang, Huang Bi, Zhihong Liang, Hua Zhou, Hongji Yang

4. Edge Computing for Internet of Things: A Survey

Huihui Xue, Bi Huang, Mingming Qin, Hua Zhou, Hongji Yang

CPSCom-14: Technologies & Applications II
Session Chair: Saide Zhu, Georgia State University, USA

1. DeepER: A Deep Learning based Emergency Resolution Time Prediction System

Gissella Bejarano, Adita Kulkarni, Xianzhi Luo, Anand Seetharam, Arti Ramesh

2. Forest Type Classification with Multitemporal Sentinel-2 Data

Jin Li, Leiguang Wang

3. Automatic Prediction and Insertion of Multiple Emojis in Social Media Text

Hongyu Jiang, Ao Guo, Jianhua Ma

CPSCom-15: Networks & Communications
Session Chair: Cheng Zhang, West Texas A&M University, USA

1. An Evaluation of Caching in Nation Scale, Normally Isolated Mobile Ad Hoc Networks

Sean Oesch, Max Schuchard

2. Cypher Social Contracts a Novel Protocol Specification for Cyber Physical Smart Contracts

Lars Creutz, Guido Dartmann

3. RFID-Based WIMEC-LANDMARC Indoor Location Algorithm

Yang Li, Peng Li, He Xu

4. Data Aggregation Algorithm based on Autoregressive Model in Wireless Sensor Networks

Hanxiao Zhi, Peng Li, He Xu

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