

## Cloud-Edge Computing and Communications

Cloud computing, with the powerful computational and communications functions, is becoming an essential infrastructure in the era of data processing. Some famous enterprises, such as Alibaba, Google, Amazon, Baidu, Tencent and Microsoft, have deployed or are developing their own revolutionized infrastructure of Cloud computing to accelerate the development of industry. At the same time, with the increasing development of computational and communications potential of smart devices, edge computing, as an emerging paradigm of data computing and communications form, is attracting growing attention from both academia and industry. Currently, cloud computing and communication is mainly used to process and exchange large-scale, long-term, global data, which can be used to obtain decision-making information such as the feature, law or rule sets. The edge computing and communication is used to process and exchange small-scale, short-term, local data, which is used to present the real-time situation. To make fully use of the advantages of both cloud and edge computing and communications, is becoming a tendency of data processing and analytics to offer high-quality services for humans.

However, as the future vision of data computing and communications development, cloud-edge computing and communications, incorporating various computing and communication technologies, has many challenging issues to be coped with. For example, how to reasonably process and exchange data to provide high-quality personalized services for human? How to dynamic schedule the computational tasks between the data center and smart devices with less energy consumption and execution time? How to protect users' privacy and sensitive data in cloud-edge computing and communications? How to realize highly-efficient communication among the employed smart devices?

Therefore, to address the challenging questions of cloud-edge computing and communications, this special issue solicits original technical papers with novel contributions on the cloud-edge computing and communications. Tutorial or survey papers are also welcome. For each submission, the review process will begin immediately once the submission is received and the final decision will be made within 4 months. Authors are strongly encouraged to submit their work once it is ready.

Potential topics include but are not limited to the following:

- Internet-of-Things, and device-to-device communications
- Data computing and communications (e.g. big data, cloud computing)
- Parallel and distributed computing of big data
- Low-power, distributed data processing
- Green cloud-edge computing and communications
- Wireless sensor networks and communications
- Energy efficient in edge computing
- Energy efficient in cloud-edge computing and communications
- Energy efficient networking, wireless networks and networking
- Optimization and analysis of big data
- Privacy and privacy-preserving technical solutions in cloud-edge computing and communications
- Quality of experience and quality of services in smart world
- Cloud-edge-based service

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| Submission Deadline <b>February 28, 2018</b> | First Round Notification <b>April 30, 2018</b> |
| Revision Deadline <b>May 30, 2018</b>        | Final Round Notification <b>June 30, 2018</b>  |

Papers are published upon acceptance, regardless of the Special Issue publication date.

Lead Guest Editor

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**Laurence T. Yang** got his BE in Computer Science and Engineering from Tsinghua University, China and Ph.D in Computer Science from University of Victoria, Canada. He is a professor at Department of Computer Science of St. Francis Xavier University, Canada. His research includes cyber-physical-social systems; parallel and distributed computing, embedded and ubiquitous/pervasive computing, and big data. He has published around 300 international journal papers in the above areas, of which half on top IEEE/ACM Transactions and Journals, others mainly on Elsevier, Springer and Wiley Journals. He has been involved actively in conferences and workshops as a program/general/steering conference chair and numerous conference and workshops as a program committee member. He served as the vice-chair of IEEE CS Technical Committee of Supercomputing Applications (2001-2004), the chair of IEEE CS Technical Committee of Scalable Computing (2008-2011), and the chair of IEEE CIS Task force on Ubiquitous Computing and Intelligence (2009-2013). He was in the steering committee of IEEE/ACM Supercomputing conference series (2008-2011), and was in the National Resource Allocation Committee (NRAC) of Compute Canada (2009-2013), as well as the scientific committee chair (2012-2013) for Engineering, Mathematics and Computing Science of Compute Canada. He was the vice-chair (2014) and the chair (2015) of IEEE Canada Atlantic Section. Now he is the chair of IEEE SMC Technical Committee on Cybermatics (2016-) and vice-chair of IEEE CIS Technical Committee on Smart World (2016-). In addition, he is the editors-in-chief of several international journals. He is serving as an editor for many international journals (such as IEEE Systems Journal, Future Generation of Computer Systems (Elsevier), Information Sciences (Elsevier), Information Fusion (Elsevier), Big Data Research (Elsevier), etc). He is a fellow of Canadian Academy of Engineering.

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**Stephen S. Yau** is Professor of Computer Science and Engineering in the School of Computing, Informatics, and Decision Systems Engineering at Arizona State University (ASU), Tempe, Arizona, USA. He served as the chair of the Department of Computer Science and Engineering at ASU in 1994-2001. Previously, he was on the faculties of Northwestern University, Evanston, Illinois, and University of Florida, Gainesville. He served as the president of the Computer Society of the Institute of Electrical and Electronics Engineers (IEEE) and was on the IEEE Board of Directors and the Board of Directors of Computing Research Association. He served as the editor-in-chief of IEEE COMPUTER magazine. He organized many major conferences, including the 1989 World Computer Congress sponsored by the International Federation for Information Processing (IFIP), and

the IEEE Annual International Computer Software and Applications Conference (COMPSAC) sponsored by IEEE Computer Society. He is currently an honorary chair of IEEE World Congress on Services and co-located conferences at Honolulu, USA, June 25-30, 2017, and the 2017 IEEE Smart World Congress in San Francisco, USA, August 4-8, 2017. His current research includes services and cloud computing systems, cyber security, trustworthy computing, software engineering, internet of things, and ubiquitous computing. He has received various awards and recognitions, including the Tsutomu Kanai Award and Richard E. Merwin Award of the IEEE Computer Society, the IEEE Centennial and Third Millennium Medals, and the Outstanding Contributions Award of the Chinese Computer Federation. He is a Life Fellow of the IEEE and a Fellow of the American Association for the Advancement of Science. He received the B.S. degree from National Taiwan University, Taipei, and the M.S. and Ph.D. degrees from the University of Illinois, Urbana, all in electrical engineering.

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**Didier El Baz** was born in Toulouse, France, in 1958. He received the Doctor of Engineering degree in Control Theory from INSA Toulouse in January 1984. Dr El Baz was visiting scientist in the Laboratory for Information and Decision Systems, MIT Cambridge Massachusetts, USA, in 1984. He received the HDR in Computer Sciences from INP Toulouse in 1998. He is the founder and the head of the team Distributed Computing and Asynchronism at LAAS-CNRS. His fields of interest are in communication protocols, Internet of Things, parallel and distributed computing, peer to peer computing, GPU computing, and optimization.

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**Xiaokang Wang** received the B.S. degree in Electronic and Information Engineering from Henan Normal University, Xinxiang, China, in 2009, the M.S. degree in Computer Science from Changzhou University, Changzhou, China, in 2012, and the Ph. D degree in Computer System Architecture from Huazhong University of Science and Technology, Wuhan, China. Currently, he is a postdoc fellow at St. Francis Xavier University, Canada. His research interests include cyber-physical-social systems, big data, distributed and parallel computing. He has published several papers on the topics of cyber-physical-social systems, big data and distributed and parallel computing---including papers in IEEE Transactions on Big Data, IEEE Transactions on Sustainable Computing, and IEEE Transactions on Computational Social Systems.