IEEE Transactions on Intelligent Transportation Systems

Call for Papers

Special Issue on "Data Science for Cooperative Intelligent Transportation Systems"

Although transportation systems are naturally represented as networks, i.e., road networks and internet of vehicles, they are loosely organized with multi-source heterogeneity. Thus, communication cooperation on the road including car-to-car and car-to-infrastructure is significant for intelligent transportation systems. Cooperative Intelligent Transport System (C-ITS) aims to improve safety, sustainability, efficiency, and comfort beyond the scope of stand-alone systems by taking advantage of the communication and cooperation between its participants. It is a key enabler for future road traffic management systems. The core components of C-ITS include vehicles, roadside units, and traffic command centers. They generate a large amount of traffic that is made up of both mobility and service-related data. Therefore, data science methodologies and applications are the key components of C-ITS. However, with the huge amount of data from transportation sensor networks, integration data science methodologies and applications present a real challenge for realizing C-ITS applications. Although some attempts have been done to explore data science for C-ITS, there exist various scientific and engineering challenges including software and hardware development, computational complexity, data multi-source heterogeneity, and privacy protection. Consequently, to fully explore the benefits of C-ITS applications like connected and autonomous vehicles, traffic control and prediction, road safety, and accident prediction, advanced data science methodologies and applications are in great need.

This special issue aims to solicit high-quality original research papers, which address major challenges for C-ITS like connected and autonomous vehicles, traffic control and prediction, road safety, and accident prediction, supported by advanced data science technologies. The expected topics of interest include, but are not limited to:

- Application of data science in C-ITS
- Machine/Deep learning models for C-ITS
- Clustering and classification algorithms for C-ITS
- Big data analytics for data processing from C-ITS
- Efficient data generation and transmission for C-ITS
- Data science based trust, fraud detection, and cybersecurity
- Data science based security and privacy solutions for C-ITS
- Data science based energy-aware traffic management solutions
- Transportation big data analytics for public transit planning and operation
- Innovative data science techniques for attacks detection and prevention in C-ITS
- Data science in C-ITS domains: safety, sustainability, efficiency, and comfort

PAPER SUBMISSION GUIDELINES
Paper submission should conform to the information for authors
available at https://mc.manuscriptcentral.com/t-its.

IMPORTANT DATES
First submission deadline: June 30, 2021
Notification of first decision: September 30, 2021
First revision submission deadline: December 31, 2021
Notification of final decision: April 2022
Final manuscript (camera ready) submission deadline: May 2022
Issue of Publication: June 2022.

SUBMISSION AND REVIEW OF PAPERS
Submitted papers should be original and not be under consideration elsewhere for publication. The authors should follow the journal guidelines, regarding the manuscript content and its format when preparing their manuscripts. All papers will be reviewed by at least three independent reviewers for their suitability in terms of technical novelty, scientific rigor, scope, and relevance to this special issue.

Guest Editors:

Dr. Syed Hassan Ahmed (Lead Guest Editor), IEEE Senior Member
JMA Wireless, USA
Email: sh.ahmed@ieee.org

Dr. Vincenzo Piuri, IEEE Fellow
University of Milan, Italy
Email: vincenzo.piuri@unimi.it

Dr. Laurence T. Yang, IEEE Fellow
St. Francis Xavier University, Canada
Email: ltyang@stfx.ca

Dr. Wei Wei, IEEE Senior Member
Xi'an University of Technology, China
Email: weiwei@xaut.edu.cn

Dr. Syed Hassan Ahmed is currently working at JMA Wireless as a Product Specialist for Distributed Antenna System (DAS), CBRS, Small Cell, and virtualized RAN product line. Previously, he was an Assistant Professor in the Department of Computer Science at Georgia Southern University, USA. He also founded Wireless Internet and Networking Systems (WINS) lab. Prior to this, he was a Post-Doctoral Fellow in the Department of Electrical and Computer Engineering, University of Central Florida, Orlando, USA. Before moving to the United States, he completed his BS with honors in CS from Kohat University of Science & Technology (KUST), Pakistan and Master

combined Ph.D. Degree from School of Computer Science and Engineering (SCSE), Kyungpook National University (KNU), Republic of Korea (South Korea). In summer 2015, he was also a visiting researcher at Georgia Tech, Atlanta, USA. Overall, he has authored/co-authored over 200 international publications including Journal articles, Conference Proceedings, Book Chapters, and 03 books. In 2016, his work on robust content retrieval in future vehicular networks lead him to win the Qualcomm Innovation Award at KNU, Korea. Dr. Hassan's research interests include Sensor and Ad hoc Networks, Cyber-Physical Systems, Vehicular Communications, and Future Internet. He is currently the Member of the Board of Governors and IEEE VTS liaison to IEEE Young Professionals society. From the year 2018, he is also an ACM Distinguished Speaker. Furthermore, Dr. Hassan is a Senior IEEE and ACM Professional member, served as a TPC Member or Reviewer in 100+ International Conferences and Workshops including IEEE Globecom, IEEE ICC, IEEE CCNC, IEEE ICNC, IEEE VTC, IEEE INFOCOM, ACM CoNEXT, ACM MobiHoc, ACM SAC, and many more. Furthermore, he has been reviewing papers for 30+ International Journals including IEEE Magazines on Wireless Communications, Networks, Communications, IEEE Communications Letters, IEEE Sensors Letters, IEEE Transactions on Industrial Informatics, Vehicular Technologies, Intelligent Transportation Systems, Big Data, and Mobile Computing. Moreover, Dr. Hassan has been an editorial member of more than 30 Special Issues with top-ranked journals in Communication Society and serving as an editorial board member of KSII Transactions on Internet & Information Systems, Wiley's Internet Technology Letters, Transactions on Emerging Telecommunications Technologies, IEEE Newsletters on Internet Initiative, Future Directions, and Software Defined Networks.

Dr. Vincenzo Piuri has received his Ph.D. in computer engineering at Politecnico di Milano, Italy (1989). He is Full Professor in computer engineering at the Università degli Studi di Milano, Italy (since 2000). He has been Associate Professor at Politecnico di Milano, Italy and Visiting Professor at the University of Texas at Austin and at George Mason University, USA. His main research interests are: artificial intelligence, computational intelligence, intelligent systems, machine learning, pattern analysis and recognition, signal and image processing, biometrics, intelligent measurement systems, industrial applications, digital processing architectures, fault tolerance, and cloud computing infrastructures. Original results have been published in 400+ papers in international journals, proceedings of international conferences, books, and book chapters. He is Fellow of the IEEE, Distinguished Scientist of ACM, and Senior Member of INNS. He is President of the IEEE Systems Council (2020-21), and has been IEEE Vice President for Technical Activities (2015), IEEE Director, President of the IEEE Computational Intelligence Society, Vice President for Education of the IEEE Biometrics Council, Vice President for Publications of the IEEE Instrumentation and Measurement Society and the IEEE Systems Council, and Vice President for Membership of the IEEE Computational Intelligence Society. He has been Editor-in-Chief of the IEEE Systems Journal (2013-19). He is Associate Editor of the IEEE Transactions on Cloud Computing and has been Associate Editor of the IEEE

Transactions on Computers, the IEEE Transactions on Neural Networks, the IEEE Transactions on Instrumentation and Measurement, and IEEE Access. He received the IEEE Instrumentation and Measurement Society Technical Award (2002). He is Honorary Professor at: Obuda University, Hungary; Guangdong University of Petrochemical Technology, China; Northeastern University, China; Muroran Institute of Technology, Japan; and the Amity University, India.

Dr. Laurence T. Yang got his BE in Computer Science and Technology and BSc in Applied Physics both from Tsinghua University, China and Ph.D in Computer Science from University of Victoria, Canada. He is a professor and W.F. James Research Chair at St. Francis Xavier University, Canada. His research includes parallel, distributed and cloud computing, embedded and ubiquitous/pervasive computing, and big data. He has published 200+ papers in the above areas on top IEEE/ACM Transactions/Journals including 5 and 25 papers as top 0.1% and top 1% highly-cited ESI papers, respectively. He has been involved actively act as a steering chair for 10+ IEEE international conferences. He is the chair of IEEE CS Technical Committee of Scalable Computing (2008-2011, 2018-), the co-chair of IEEE SMC Technical Committee on Cybermatics (2016-) and the vice-chair of IEEE CIS Technical Committee on Smart World (2016-2019). Besides, he is serving as an editor for many international journals. He is an author/co-author or an editor/co-editor of more than 25 books from well-known publishers, invited to give around 50 keynote talks at various international conferences and symposia. His recent honours and awards include IEEE Canada C. C. Gotlieb Computer Medal (2020), Fellow of Institute of Electrical and Electronics Engineers (2020), IEEE SCSTC Most Influential Paper Award on Smart Computing (2019), IEEE TCBD Best Journal Paper Award on Big Data (2019), Clarivate Analytics (Web of Science Group) Highly Cited Researcher (2019), Fellow of Engineering Institute of Canada (2019), AMiner Most Influential Scholar Award for Internet of Things (2018), IEEE TCCPS Distinguished Leadership Award on Cyber-Physical Systems (2018), IEEE SCSTC Life-Career Achievement Award on Smart Computing (2018), Fellow of Canadian Academy of Engineering (2017), IEEE System Journal Best Paper Award (2017), IEEE TCSC Award for Excellence in Scalable Computing (2017), Elsevier JCSS Journal Most Cited Paper Award (2017) and the PROSE Award on Engineering and Technology (2010).

Dr. Wei Wei is an Associate Professor in the School of Computer Science and Engineering at the Xi'an University of Technology in China. He has received his Ph.D from Xi'an Jiaotong University. His research interests include Internet of Things, wireless sensor networks, image processing, mobile computing, distributed computing, pervasive computing, smart city, artificial intelligence, sensor data clouds, etc. He has over 200 papers published or accepted by international conferences and journals (e.g., IEEE Transactions on Services Computing, IEEE Transactions on Industrial Informatics, IEEE Transactions on Computational Social Systems, IEEE Communications Magazine, IEEE Transactions on Parallel and Distributed Systems, IEEE Internet of Things). He is an Associate Editor of IEEE Access. He is also an

editorial member of Future Generation Computer Systems, Neural Computing and Applications, Journal of Network and Computer Applications, Ad Hoc & Sensor Wireless Networks, IEICE Transactions on Information and Systems, KSII Transactions on Internet and Information Systems. He is also leading guest editors of IEEE Transactions on Industrial Informatics, IEEE Intelligent Systems, Image and Vision Computing, Computer Communications, International Journal of Distributed Sensor Networks, IEEE Access, Mathematical Biosciences and Engineering, Personal and Ubiquitous Computing, Computing Journal, Design Automation for Embedded Systems, Journal of Ambient Intelligence and Humanized Computing, Journal of Internet Technology. He is a TPC member of many conferences and regular reviewer of IEEE Communications Magazine, IEEE Transactions on Parallel and Distributed Systems, IEEE Transactions on Image Processing, IEEE Transactions on Mobile Computing, IEEE Transactions on Wireless Communications, IEEE Transactions on Industrial Informatics, IEEE Transactions on Industrial Electronics. He ran many funded research projects as principal investigator and technical members. He is a senior member of IEEE and CCF.