



Association for  
Computing Machinery

*Advancing Computing as a Science & Profession*



**ACM Distinguished Speaker Tour @ ITU, 18-19 July 2019**

**Part-I:**

## **Trustworthiness and truthfulness issues in big crowd-sensed data**



**Dr. Burak Kantarci**  
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**18 July 2019 at 13:30, Idris Yamanturk Conference Hall, Room1302,  
Istanbul Technical University**

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**Abstract:** As a cloud-inspired sensing service model, mobile crowd-sensing can enable access to the Internet of Things (IoT)-based services. When mobile crowd-sensing becomes widely adopted, sensed data from mobile devices can be accessed by IoT applications on a pay-as-you-go fashion. In the presence of adversaries aiming at misinformation through manipulation of their sensing data, trustworthiness of big crowd-sensed data introduces a crucial concern for the end users of crowd-sensing-based services. This lecture provides an overview of the state of the art in mobile crowd-sensing, and presents recent research that addresses the trustworthiness challenges in crowd-sensed big data acquisition. Outlier detection-backed statistical reputation models, social network Sybil detection-inspired recommendation models, and hybrid models are presented with pros and cons. In addition, an anchor-assisted recommendation in data acquisition is introduced along with a thorough discussion on its benefits and overheads. I also report open issues, existing challenges and possible research directions in this field.

**Bio:** Dr. Burak Kantarci is an Associate Professor with the School of Electrical Engineering and Computer Science at the University of Ottawa. From 2014 to 2016, he was an assistant professor at the ECE Department at Clarkson University, where he currently holds a courtesy professor appointment. Dr. Kantarci received the M.Sc. and Ph.D. degrees in computer engineering from Istanbul Technical University, in 2005 and 2009, respectively. While pursuing his Ph.D thesis, he studied as a Visiting Scholar with the University of Ottawa (2007-2008). He has co-authored over 150 papers in established journals and conferences, and contributed to 13 book chapters. He is the Co-Editor of the book entitled Communication Infrastructures for Cloud Computing. He has served as the Technical Program Co-Chair of fifteen international conferences/symposia/workshops. He has been the PI/co-PI of several federally/provincially-funded research projects supported by Natural Sciences and Engineering Research Council of Canada (NSERC), U.S. National Science Foundation (NSF), Ontario Centres of Excellence (OCE) and MITACS Canada. Dr. Kantarci is an editor of the IEEE Communications Surveys and Tutorials and an area editor of IEEE Transactions on Green Communications and Networking, an associate editor of IEEE Networking Letters. He serves as the Chair of the IEEE Communication Systems Integration and Modeling Technical Committee. He is a senior member of the IEEE and a Distinguished Speaker of the ACM.



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**ACM Distinguished Speaker Tour @ ITU, 18-19 July 2019**

**Part-II:**

## **Empowering biometrics for authentication**



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**Idris Yamanturk Conference Hall, Room1302,**

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**Abstract:** Learning unique behavioral patterns of an individual can improve detection of identity spoofing while addressing user comfort issues in user authentication processes. To this end, social and physical behavior can be coupled in order to verify a user's identity. The talk presents social and physical (i.e. gesture-based) biometric frameworks to ensure authenticity of users on smartphones and cope with spoofing attempts. The talk discusses the performance of biometric authentication methods in terms of detection accuracy, precision, authenticity, user comfort, and stability. The talk also reports open issues, existing challenges and possible research directions in this field.

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