



**THE CHINESE UNIVERSITY OF HONG KONG**  
Department of Information Engineering  
*Seminar*

**Computing Platforms for Mobile Intelligence**  
by  
**Professor Jun Zhang**  
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**Date : 22 September, 2017 (Friday)**  
**Time : 10:00am – 11:00am**  
**Venue : Room 833, Ho Sin Hang Engineering Building**  
**The Chinese University of Hong Kong**

Abstract

With the revival of artificial intelligence, and the emerging intelligent mobile application scenarios, such as autonomous vehicles, virtual/augmented reality, and smart city, we are entering an era of mobile intelligence. This trendy movement demands platforms that support data-intensive, computation-intensive, and delay-sensitive intelligent mobile computing. This talk will present in-memory big data analytics clusters and mobile edge computing as two key enablers for mobile intelligence. Data-parallel analytics clusters help to handle data-intensive and computation-intensive applications, such as intelligent personal assistance (e.g., Siri) and image/speech recognition. Effective in-memory cache management plays a decisive role in such platforms, and we will present a novel cache replacement policy, called Least Reference Count (LRC), which exploits application-specific data dependency. Mobile edge computing, on the other hand, supports delay-sensitive applications, such as augmented reality, Internet of Things applications, and connected vehicles. This is achieved by placing computer servers at radio access points, which avoids excessive propagation delay. Edge servers are limited in computing power, and multiple mobile devices share the limited radio resources when offloading tasks. We will introduce recent development in joint radio and computation resource management for mobile edge computing.

Biography

Dr. Jun Zhang received the B.Eng. degree in Electronic Engineering from the University of Science and Technology of China in 2004, the M.Phil. degree in Information Engineering from the Chinese University of Hong Kong in 2006, and the Ph.D. degree in Electrical and Computer Engineering from the University of Texas at Austin in 2009. He is currently a Research Assistant Professor in the Department of Electronic and Computer Engineering at the Hong Kong University of Science and Technology (HKUST). His research interests include dense wireless cooperative networks, mobile edge caching and computing, cloud computing, and big data analytics systems.

Dr. Zhang co-authored the book Fundamentals of LTE (Prentice-Hall, 2010). He is a recipient of several best paper awards, including the 2016 Marconi Prize Paper Award in Wireless Communications, the 2014 Best Paper Award for the EURASIP Journal on Advances in Signal Processing, an IEEE ICC Best Paper Award in 2016, and an IEEE PIMRC Best Paper Award in 2014. One paper he co-authored received the 2016 Young Author Best Paper Award of the IEEE Signal Processing Society. He also received the 2016 IEEE ComSoc Asia-Pacific Best Young Researcher Award. He is an Editor of IEEE Transactions on Wireless Communications, and is a guest editor of the special section on "Mobile Edge Computing for Wireless Networks" in IEEE Access.

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