Abstract

Radio-frequency Identification (RFID) systems nowadays have been widely used in various cyber-physical systems in the fields such as energy, transportation, manufacturing, and healthcare, for identification, tracking, and information collection due to the simplicity and low cost of RFID tags. For these cyber-physical systems, time-efficient information collection is usually desirable or even a must, but highly challenging with RFID systems because the hardware of tags is too simple to support sophisticated protocol operations and naive solutions suffer severe transmission collisions and significant communication overhead. In this talk, a new protocol for time-efficient information collection in RFID systems is presented. By using several new and lightweight techniques such as Bloom filtering and hash functions, the protocol successfully removes the unnecessary time-consuming transmissions of tag IDs in naive solutions and also efficiently minimizes transmission collisions, which drastically reduces the time and communication overhead for information collection.

Biography of Speaker

Hao Yue received his B.E. degree in Telecommunication Engineering from Xidian University, Xi'an, China, in 2009, and Ph.D. degree in Electrical and Computer Engineering from the University of Florida in 2015. He is now an Assistant Professor in the Department of Computer Science at San Francisco State University. His research interests include cyber-physical systems, cybersecurity, and communications and networking.