Colloquium

School of Computing

Dr. Rhongho Jang

Rhongho Jang earned his B.S. and M.Sc. degrees from INHA University of South Korea in 2013 and 2015, respectively. Currently, he is a Ph.D. candidate at the University of Central Florida (UCF). He also concurrently pursued a Ph.D. in Computer Science at INHA University, where he has defended his dissertation on mobile security. His research interests lie in network system and security, network traffic measurement, and mobile security. To date, he published several peer-reviewed research papers, including top-tier conferences, such as IEEE INFOCOM, IEEE ICDCS, and premier journals such as IEEE TMC. He won the Best-in-Session Presentation Award (SDN II) at IEEE INFOCOM (2017), the Outstanding Young Researcher award from the Korea Internet Security Agency (2018). His services include being the webchair in ACM CoNEXT 2019 and a reviewer for IEEE TNSM, IEEE TMC, ACM/IEEE ToN and ETRI Journal.

Tuesday, March 3, 2020
11:00 - 11:50 AM
Engineering Building A, Room 220

Towards Scalable Network Traffic Measurement with Sketches

Abstract

We are inching closer to the zettabyte era with ever-increasing volumes of traffic on the internet. Undoubtedly, IT has become one of the most important parts of human life, and demands on quality are increasing (e.g., low network latency, high-resolution images, and high-resolution videos). By 2023, there will be around 100 zettabytes of data (Source: Seagate). The increasing data volumes not only accelerated the development of processing, storage, and I/O devices but also the development of network infrastructure. As of now, the per-port speed of network devices reaches 400 Gbps, and high-end switches are capable of processing more than 25.6 Tbps network traffics. As one of the key functionalities of such devices, network traffic measurement is crucial in many fields, such as billing, load balancing, anomaly intrusion detection, and network failure detection. However, as of now, network traffic measurement technologies are still at an early stage and facing unprecedented challenges. In this talk, we will discuss the challenges associated with these measurement tasks in the zettabyte era. Subsequently, we present our sketch-based technologies to deal with scalability issues and present an SDN-based framework to show how to put these technologies into networked systems to scale up the measurement system.