



WORLD AUTOMATION CONGRESS

WAC 2020

14th Bi-annual Congress

Taipei, Taiwan

Lifetime Achievement Keynote

No. TUE-AM1



Ilsun You
Soonchunhyang University
Republic of Korea

Time: xx-xx
Date Tuesday August 18, 2020
Chair: TBN
Venue: TBN

***3GPP 5G Security Architecture: Toward a Neo-Security
Paradigm Shift***

Abstract

With the advent of the full-fledged 5G era, there is a growing expectation that 5G technology, which is characterized by ultra-fast, ultra-connected and ultra-low latency, will revolutionize our lives. Especially, 5G networks adopt edge cloud for application services within their area and provide network slicing based on network virtualization technologies to effectively support customized networks specialized for each application service. It is thus predicted that 5G will

introduce innovative application services such as realistic contents, smart factories, autonomous vehicles, smart cities, and digital healthcare as well as lead the 4th industrial revolution.

In spite of such significant progress, 5G networks are followed by new and diverse security threats and attacks beyond our imagination, which cannot be addressed by traditional security technologies. Therefore, security is a necessary and sufficient condition for successful settlement of 5G networks. As the first step for 5G security, the 3GPP (3rd Generation Partnership Project) SA3, a working group responsible for security of telecommunication networks, has standardized 3GPP 5G security framework through its TS 33.501 document entitled "Security Architecture and Procedures for 5G Systems". In this talk, 3GPP 5G security framework will be first outlined with its authentication, key management, and handover procedure, followed by the related works and research trends. Afterwards, focus will be on network slice security issues and secondary authentication, which is the key to opening the door for new security paradigm where each application is integrated with its best suit telecommunication and security service.

Bio: Ilsun You Dr. Ilsun YOU received the MS and PhD degrees in computer science from Dankook University, Seoul, Korea, in 1997 and 2002, respectively. He received the second PhD degree from Kyushu University, Japan, in 2012. From 1997 to 2004, he was at the THINmultimedia Inc., Internet Security Co., Ltd. and Hanjo Engineering Co., Ltd. as a research engineer. Now, he is an associate professor at Department of Information Security Engineering, Soonchunhyang University. He has served or is currently serving as a General Chair or a Program Chair of international conferences and workshops such as WISA'19-20, MobiSec'16-19, AsiaARES'13-15, MIST'09-17, MobiWorld'08-17, and so forth. Dr. YOU is the EiC of Journal of Wireless Mobile Networks, Ubiquitous Computing, and Dependable Applications (JoWUA). He is in the Editorial Board for Information Sciences (INS), Journal of Network and Computer Applications (JNCA), IEEE Access, Intelligent Automation & Soft Computing (AutoSoft), International Journal of Ad Hoc and Ubiquitous Computing (IAHUC), Computing and Informatics (CAI), and Journal of High Speed Networks (JHSN). Especially, he has focused on 4/5G security, security for wireless networks & mobile internet, IoT security and so forth while publishing more than 180 papers in these areas. He is a Fellow of the IET and a Senior member of the IEEE.