

# Title: Security and Privacy for the Internet of Things



**Security & Privacy  
for the Internet of Things**

A virtual event

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IEEE ComSoc Distinguished Lecturer  
National University of Singapore

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## **Abstract:**

The Internet of Things (IoT) represents an excellent opportunity to connect people, information, and things, which will, in turn, cause a paradigm shift in the way we work, interact and think. The IoT is envisioned as the enabling technology for smart cities, power grids, health care, and control systems for critical installments and public infrastructure. This diversity increased the control and interaction of devices. IoT systems use public networks to transfer large amounts of data, making them a prime target for cyber-attacks. In addition, IoT devices are usually small, low cost and have limited resources. Therefore, any protocol designed for IoT systems should be secure and highly efficient in chip area usage, energy, storage, and processing. This presentation will first highlight the unique security requirements of IoT devices and the inadequacy of existing security protocols and Internet techniques in the context of IoT systems. Next, we will focus on security solutions for the IoT, focusing on protection against physical and side-channel attacks. In particular, we will focus on mutual authentication protocols for IoT devices based on security primitives that exploit hardware-level characteristics of IoT devices.

## **Biography:**

Biplab Sikdar is an Associate Professor in the Department of Electrical and Computer Engineering at the National University of Singapore, where he also serves as a Vice Dean in the Faculty of Engineering. He received a B. Tech. Degree in electronics and communication engineering from North-Eastern Hill University, Shillong, India, in 1996, the M.Tech. Degree in electrical

engineering from the Indian Institute of Technology, Kanpur, India, in 1998, and a Ph.D. degree in electrical engineering from the Rensselaer Polytechnic Institute, Troy, NY, USA, in 2001. He was an Assistant Professor from 2001-to 2007 and Associate Professor from 2007-to 2013 in the Department of Electrical, Computer, and Systems Engineering at Rensselaer Polytechnic Institute from 2001 to 2013. He is a recipient of the NSF CAREER award, the Tan Chin Tuan Fellowship from NTU Singapore, the Japan Society for Promotion of Science fellowship, and the Leiv Eiriksson fellowship from the Research Council of Norway. His research interests include IoT and cyber-physical system security, network security, and network performance evaluation. Dr. Sikdar is a member of Eta Kappa Nu and Tau Beta Pi. He has served as an Associate Editor for the IEEE Transactions on Communications, IEEE Transactions on Mobile Computing, and IEEE Internet of Things Journal.