



CENTER RESEARCH SEMINAR

Wireless Sensor Networks: Protocols & Analysis

Rakesh Verma, Ph.D.
Department of Computer Science
University of Houston

Thursday, March 27, 2014
3:00 p.m. – 4:30 p.m.
Room 150 at Science Building

Abstract

Wireless Sensor Networks (WSNs) are being deployed widely in hazardous and hostile environments for a variety of civil and military applications. They pose unique security challenges because of their inherent limitations in communication and computing power. This talk covers some of the key security challenges of WSNs. Among those security challenges, we focus more on the key management problem and present some new and some classical protocols for key management. We also discuss our experience with the analysis of a popular protocol for key management. Our analysis uses an automatic tool for protocol verification.

Biography

Rakesh Verma is a Professor of Computer Science at the University of Houston (UH) and Director of the Secure Protocols and Systems Laboratory. He was the co-lead in the National Security Agency designation of UH as a Center of Academic Excellence in Information Assurance Education in 2009. His research interests are on formal methods with applications to protocol verification and equational programming, on natural language processing, and on computer security. He has numerous peer-reviewed publications on these topics in leading conferences and journals. Some of these papers solve open problems in rewriting techniques and graph embeddings, which had been open for decades. His most recent papers have broken new ground in applying natural language processing techniques to security problems such as automatic phishing email detection. Dr. Verma was a visiting professor at the INRIA Lorraine in France in 1995, 1996-97 and 2001. He is a Distinguished Speaker of the ACM since 2011. He has organized or co-organized a number of workshops and served on the program committees of several conferences. He co-organized the IEEE Workshop on Security and Privacy of Wireless Sensor Networks in 2013. In 2013, he received the UH Lifetime Mentoring Award for Undergraduate Research. This UH career award, given to only member of the faculty per year, acknowledges a professor's exceptional efforts over a number of years demonstrating a lasting commitment to undergraduate research. He received his PhD and MS in Computer Science from the State University of New York at Stony Brook, where he was a Catosinos Fellow, received his Bachelor's in Electronics and Telecommunication Engineering from IIT Varanasi with highest honors and a gold medal.