The Department of
Info Systems & Cyber Security

PRESENTS:
AT&T Distinguished Lecture Series

Dr. Giri Tayi

“Managing information security outsourcing under a
dynamic cooperation environment”

Abstract: To manage information security efficiently, firms usually out-
source part of their security functions to a managed security service provider (MSSP) under a variety of contractual arrangements. Based on this practice, we study a business setting where the management of security outsourcing depends on the security efforts of both an MSSP and its clients, and their allocation of efforts can change during the contract horizon. Since their efforts are private to each other, a double moral hazard (DMH) problem arises in a bilateral refund contract. Moreover, either a high probability of undirected attack by a hacker or a high system interdependency can worsen the DMH problem. To solve it, two new contract forms are proposed. One is monitoring contract, in which their security efforts are monitored by a Cyber-insurance Firm. The other is liability contract, in which both parties take full liability for a breach through rewarding those clients who are protected well and penalizing those clients who are breached. We find that monitoring contract can solve the DMH problem only when variable monitoring cost is negligible. The liability contract can also solve the DMH problem, and is worthy of implementation when an MSSP faces a high probability of undirected attack, or a high system interdependency, or the contract horizon is long, or both parties have almost equal responsibility during the contract horizon.