

SEMINAR NOTICE

Preston M. Green Department of Electrical and Systems Engineering

AN INFORMATION THEORETIC RATE OUTER BOUND FOR IDENTIFICATION, SECRETS, AND PASSWORDS IN BIOMETRIC SYSTEMS

DISSERTATION DEFENSE

by

Po-Hsiang Lai

DSc Candidate

Preston M. Green Department of Electrical and Systems Engineering
Washington University in St. Louis

Abstract: In this talk, a fundamental trade-off between utility of biometric systems and security of biometric systems is established. The utility includes person identification and secret binding, while template protection, privacy, and secrecy leakage are security issues addressed. A general model of biometric systems is proposed, in which secret binding and the use of passwords are incorporated. The system model captures major biometric system designs including biometric cryptosystems, cancelable biometrics, secret binding and secret generating systems, and salt biometric systems. In addition to attacks at the database, information leakage from communication links between sensor modules and databases is considered. A general information theoretic rate outer bound is derived for characterizing and comparing the fundamental capacity, and security risks and benefits of different system designs.

DATE: Friday, February 24, 2011
TIME: 1:00 p.m.
PLACE: Green Hall, Room 0120

Dissertation advisor:
Dr. Joseph O'Sullivan

This seminar is in partial fulfillment
of the Doctor of Science Degree