

# SEMINAR NOTICE

Preston M. Green Department of Electrical and Systems Engineering

## **BIRTH OF A NOVEL BIOMETRICS: IDENTIFICATION AND INFORMATION SECURITY**

DSc Preliminary Research Examination

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**Abstract:** In this talk, algorithms and fundamental theories underpinning authentication, privacy, and information security issues of a novel biometric are presented. The biometric signal is obtained by laser Doppler measures targeted at the neck revealing cardiovascular activities. This signal processes significant variability due to physiological and psychological changes. A robust feature selection algorithm is developed for reliable authentication.

In addition to authentication performance, protection of privacy and secrecy, such as health information embedded in biometrics, are also of primary concerns. Information theoretic methods are employed to model and study the fundamental properties of biometric information security, suggesting that some well-known traditional privacy protection designs are suboptimal. New system designs are inspired by using linear codes which are proven to achieve optimal identification and secrecy trade-off in a general class of probabilistic models.

DATE: Friday, December 16, 2011  
TIME: 11:00 a.m.  
PLACE: Green Hall, Room 0120

Thesis advisor:  
Dr. Joseph O'Sullivan

This seminar is in partial fulfillment  
of the Doctor of Philosophy degree