

*The Electrical and Computer Engineering Program presents
ECEN Seminar Series*

Optical Biosensing for Remote Healthcare: Can we shift the landscape to include both disease management and disease prevention?

Dr. Gerard L. Coté
Director, TEES Center for Remote Healthcare Technology
Charles H. & Bettye Barclay Professor and Head
Department of Biomedical Engineering
Texas A&M University

Tuesday, 13 January 2015, 12 – 1 pm
Lecture Hall 143
Light lunch will be served

Although tremendous strides have been made in health care over the years, over one billion people still lack access to health care systems. The global health challenges of today include chronic medical conditions (e.g. cardiovascular disease, cancer, diabetes, asthma, depression, and anxiety), infectious diseases (e.g. HIV/AIDS, influenza, malaria, and tuberculosis), and the conditions closely associated with poverty including malnutrition, diarrheal diseases, and pneumonia. Beyond these chronic and infectious disease health conditions, there is a global need for monitoring health status for the elderly, athletes, astronauts, and field deployed military personnel. In particular, for home healthcare the technology is emerging to enable a paradigm shift that includes disease management and disease prevention.

Specifically, advances in biomaterials and medical devices allow the development of novel systems that will promote a paradigm shift in remote patient monitoring and patient-specific diagnosis and treatment. At the same time, ongoing research and advances in signal processing, telecommunications and networking, along with the ubiquitous connectivity afforded by the internet make it now much easier for doctors to remotely diagnose and treat patients. This marriage of information systems with portable medical devices is key to the success of delivering health care at a distance.

In this presentation both fitness and health in the context of the new Center for Remote Healthcare Technology will be discussed. Specific technologies and research areas will be focused on biomedical sensing devices for remote monitoring including noninvasive wearable devices for monitoring health and fitness such as heart rate as well as point-of-care optofluidic devices for monitoring blood biomarkers such as glucose and cardiac biomarkers.



Gerard L. Coté directs the Center for Remote Healthcare Technology and the Optical Biosensing Laboratory, where research focuses on the development of macro-scale to nano-scale systems using lasers, optics and electronics for in vivo and in vitro sensing such as development of a glucose monitoring system for determining blood sugar levels in patients with diabetes, optically monitoring perfusion and oxygenation for tissue transplants and wearable technologies, and the development of point-of-care and cell phone-based devices to remotely detect cardiac biomarkers, blood toxins, skin cancer, and malaria. He is the coauthor of over 250 publications, proceedings, and abstracts including seven book chapters and has funding from NIH, NSF, and private industry. Dr. Coté is co-holder of several U.S. patents and co-founder of three medical device companies (BioTex, Visualase, BasePair BioTechnologies). He is a Fellow of Institute of Electrical and Electronics Engineers (IEEE), a Fellow of the American Institute for Medical and Biological Engineering (AIMBE), a Fellow of the Biomedical Engineering Society (BMES), and a Fellow of the international Society for Optics and Photonics (SPIE). He is the recipient of several awards including the University of Connecticut School of Engineering Academy of Distinguished Engineers and the Recipient of the Association of Former Students of Texas A&M University Distinguished Achievement Award for Research. Dr. Coté received his master's (1987) and Ph.D. (1990) in Bioengineering from the University of Connecticut, Storrs. He has a bachelor's degree in Electrical Engineering from Rochester Institute of Technology (1986).

FOR MORE INFORMATION:
Noha Ezzat
noha.ezzat@qatar.tamu.edu
+974.4423.0152