Stephenson School of Biomedical Engineering Seminar Series
Presents

NOVEL TECHNOLOGIES FOR QUANTITATVIE OPTICAL IMAGE GUIDED PRECISION MEDICINE

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1:30 p.m. Friday, Mar. 15, 2019
REPF, Rm. 200

BIO: Dr. Javier A. Jo received the B.S. in electrical engineering from the Pontificia Universidad Católica del Peru in 1996. In 1998, he joined the University of Southern California, Los Angeles, obtaining the M.S. in electrical engineering (signal and image processing) and the Ph.D. in biomedical engineering (physiological modeling), in 2000 and 2002, respectively. In 2002, Dr. Jo changes his research focus to the field of biophotonics and has continued working in this field since then. Prior to starting his academic appointments, Dr. Jo was a postdoctoral fellow within the Department of Surgery, at Cedars-Sinai Medical Center, Los Angeles (2002-2005), and a project scientist within the Department of Biomedical Engineering at the University of California, Davis (2006). In 2006, he joined the faculty of the Department of Biomedical Engineering at Texas A&M University, where he established the Laboratory for Optical Diagnosis and Imaging (LODI). In 2019, Dr. Jo joined the faculty of the School of Electrical and Computer Engineering at the University of Oklahoma. The overall mission of Dr. Jo's research program is to develop optical sensing and imaging technologies that will impact how we: (1) study pathophysiological mechanism underlying major human diseases; and (2) clinically manage patients suffering from these diseases. While most academic labs in the field of biomedical imaging focus on either instrumentation development or computational imaging science, Dr. Jo leads a very unique research program dedicated to address major unmet needs in both biomedical research and clinical practice through the design, development, and validation of both optical spectroscopy/imaging instrumentation and computational tools and methods for the nondestructive, non or minimally invasive morphological, molecular and physiological characterization of biological and engineered tissues at multiple spatial and temporal scales.

ABSTRACT: Cardiovascular diseases and cancer are the number one and two killers in the United States and in most parts of the world. Novel medical imaging technologies capable of quantifying relevant biomarkers nondestructively and in situ could assist in every stage of the clinical management of these diseases, from screening and early diagnosis, all the way to treatment selection, guidance and monitoring, as well as recurrence surveillance. In this seminar, we will provide a succinct overview of our current efforts to both develop and clinically validate quantitative optical image-guided clinical tools to enable precision medicine and ultimately improve the clinical management of cardiovascular and cancer patients. We will highlight current efforts toward improving: 1) the timely clinical detection of high-risk atherosclerotic plaques to prevent acute coronary events, 2) the early clinical detection of epithelial pre-cancer and cancer of the oral mucosa and skin, and 3) the intraoperative detection of surgical margins of malignant and invasive brain tumors.

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