Biomedical Engineering Graduate Program

BME is proud to announce the Master’s Defense of

Amy Vaughn
BME MS Candidate

“Synchronization and Data Acquisition of a Multimodal System for Early Detection of Ovarian Cancer”

Abstract: Ovarian cancer is a devastating disease with a 5-year survival rate as low as 15% after diagnosis. This low survival rate is mostly due to limitations in early screening methods and a lack of understanding of the disease’s origins. Recent research has revealed that high grade serous carcinoma, the most commonly diagnosed form of ovarian cancer in the United States, may begin development in the fallopian tubes and spread to the ovaries at a later stage. Current imaging methods such as Transvaginal Ultrasound, CT, and MRI lack the high resolutions necessary to detect small lesions within the fallopian tubes. I present a data acquisition and synchronization design of a multimodal Optical Coherence Tomography (OCT) and Multiphoton Microscopy (MPM) endoscopic system for detecting early stage ovarian cancer in the fallopian tubes. OCT and MPM are optical imaging methods capable of reaching submicron resolutions and are capable of being miniaturized for endoscopic use. Real-time wide-field microscopy allows for navigation of the endoscope through the fallopian tubes. Data and images collected are displayed, processed, and saved on a computer using LabVIEW. Using multiple imaging modalities provides different but complimentary information on tissue, possibly making early ovarian cancer detection easier. Synchronization between these modalities is designed so the user can switch between modalities as necessary. This multimodal endoscopic system is designed to allow for easy integration into the clinical environment.

Monday, April 23rd, 2018
Keating 103
11:00 am
Host: Jennifer Barton, PhD
Email: barton@email.arizona.edu

Persons with a disability may request a reasonable accommodation by contacting the Disability Resource Center at 621-3268 (V/TTY).