UConn BME Graduate Program Track Information Presented by Three UConn BME Faculty Members:

Dr. Sabato Santaniello: “The Neuroengineering Track”

Neuroengineering is an emerging discipline at the interface of neuroscience, device development, computation, and mathematics. It combines state-of-the-art technologies, algorithms, and experimental research to develop assistive devices for persons with neural disorders, reveal the mechanisms of neural computation, and inspire new technologies by reverse engineering living neural systems. The talk will illustrate the current research efforts in Neuroengineering at University of Connecticut.

Dr. Bin Feng: “Biomechanics in UConn BME”

Biomechanics is the study of the structure and function of biological systems by means of mechanics. Biomechanics is a multidisciplinary field in nature and represents the broad interplay between engineering mechanics and biological systems of different scales from humans, animals and plants to organs, cells and molecules. Built upon the solid foundation of classic mechanics (e.g., continuum mechanics, kinematics, and dynamics), biomechanics combines life science disciplines to significantly advance our mechanistic understandings of biological systems and effectively translate that knowledge to benefit the society. This presentation will briefly introduce the ongoing research programs relevant to biomechanics here at UConn. Professor George Lykotrafitis’s group is focused on biomechanics in the cellular level. Cutting-edge technologies like atomic force microscopy and force nanoscopy are applied to study the mechanisms of sickle-cell disease and neuronal ion channel distributions. Professor David Pierce uses a synergistic theoretical, experimental and computational approach to study the biomechanics of cartilage, arteries and reliability of microelectromechanical systems (MEMS). Professor Bin Feng’s group studies neural encoding and processing in visceral pain in which biomechanics can play important roles. Ongoing research includes biomechanics of large intestinal tissue and micro-mechanics between sensory nerve terminals and surrounding extracellular matrix.

Dr. Kazunori Hoshino: “Biomedical Imaging and Biosensors Track”

Dr. Kazunori Hoshino will introduce research activities of the Biomedical Imaging and Biosensors track of the BME department. The three groups that will be focused on in his talk are:
(Dr. Ki Chon group) medical instrumentation, biosignal processing, modeling, simulation and development of novel algorithms to understand dynamic processes and extract distinct features of physiological systems
(Dr. Guoan Zheng group) imaging platforms, microscopy, endoscopy, biophotonics, computational imaging, lab-on-a-chip devices
(Dr. Kazunori Hoshino group) Microelectromechanical systems (MEMS), micro total analysis systems (μ-TAS), and detection and analysis of tumor cells