

Department of Computer Science
University of Houston

Distinguished Lecturers Seminar 
Fall 2010

WHEN: WEDNESDAY, OCTOBER 20, 2010
WHERE: PGH 232
TIME: 11:00 AM

SPEAKER: Dr. Raimond L. Winslow, Johns Hopkins University School of Medicine

Host: Dr. Ioannis Pavlidis

Title: What We Can Learn From Integrative Modeling of the Heart

Abstract:

The ability to model systems across a wide range of spatio-temporal scales is now an important problem confronting many different areas of science and technology. The need to do this is especially acute in cardiovascular science. Sudden cardiac death is now the leading cause of mortality in the western world. Despite significant advances in our knowledge of the molecular basis of heart disease, it remains a challenge to understand how the altered molecular function of cardiac muscle cells leads to arrhythmias at the level of the whole heart. This talk will review our work on how to approach the problem of integrative modeling of heart function. We will present an example of how integrative models can be used to understand the ways in which molecular events, evolving at the nanometer and nanosecond spatio-temporal scale, can play a profound role in shaping heart function in both health and disease.

Bio:

Dr. Winslow is the Raj and Neera Singh Professor of Biomedical Engineering at The Johns Hopkins University School of Medicine. He is also Director of the Institute for Computational Medicine. Established in 2005, the mission of the ICM is to use quantitative methods from mathematics and computer science to develop computational models of the anatomic and physiological basis of disease, and to then apply these models as "in silico" tools for developing new therapies. His major research interest is in understanding the cause and treatment of heart disease through development and application of quantitative models. He also leads the CardioVascular Research Grid project - a national effort to create an informatics infrastructure that will enable sharing and analysis of data within the cardiovascular research community, and improve our ability to discover factors that predict disease risk and outcomes.