

Speaker: Dr. Raimond Winslow

Title - The Johns Hopkins University Institute for Computational Medicine

Abstract

The nature of basic biological research has been transformed during the past decade. This transformation has been driven in large part by development of new technologies for high throughput data generation which now make it possible to acquire gene sequences, measure the complement of genes and proteins expressed in cells and/or tissues, map protein-protein interactions and image functional properties of cells, tissue and organs under a wide range of conditions. The impact of these technologies on identification of the cause, diagnosis and treatment of human illness is more recent, but equally profound. It will soon be common for clinical research studies to collect genetic, transcriptional, proteomic, imaging and phenotypic data from every patient in large, carefully selected cohorts sharing a specific disease diagnosis. The future success of biomedical research organizations will in large part be determined by the extent to which they are able to harness cutting edge research and technology development in informatics, mathematics and computational sciences to manage, analyze and model such multi-scale datasets. The mission of the Institute for Computational Medicine is to understand the mechanisms and to improve the diagnosis, prediction and treatment of human disease through applications of engineering, mathematics and computational sciences. ICM research is focused in three broad areas: a) computational anatomy; b) biological systems modeling; and c) bioinformatics. In this talk, I will provide an overview of the ICM and illustrate ongoing research in each of these three areas.

Speaker Bio:

Dr. Raimond Winslow holds a Ph.D. in Biomedical Engineering from the Johns Hopkins University. He is a Professor of Biomedical Engineering, and holds joint appointments in the departments of Electrical and Computer Engineering, Computer Science, Medicine and Health Sciences Informatics.

He is Director of the Johns Hopkins University Center for Cardiovascular Bioinformatics and Modeling (CCBM) and the Institute for Computational Medicine (ICM). The research focus of CCBM is to develop new methods for the representation, storage, analysis and modeling of biological data, and to apply these methods to better understand cardiovascular function in both health and disease. The mission of the ICM is to develop quantitative approaches for understanding the mechanisms, diagnosis and treatment of human disease through applications of mathematics, engineering and computer science.

Dr. Winslow is also the Associate Director of the Whitaker Biomedical Engineering Institute and the Director of the Biomedical Engineering PhD program.

He is a Fellow of the American Institute of Medical and Biomedical Engineers; he received the Computerworld/Smithsonian 1998 Information Technology Innovations Award for "Digital Heart" category Medicine; he received the 1985 Young Investigators Day Paul Ehrlich Graduate Student Award, The Johns Hopkins University School of Medicine; and is a member of the Eta Kappa Nu Electrical Engineering Honor Society. He is the author of over 70 publications.