

Biomedical and Health Informatics Lecture Series

Tuesday, June 3, 2008
12:00 - 12:50 p.m., Room RR-134

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"Semantics for the Physiome -- modular models for biosimulation"

Research in biosimulation models has reached a tipping point where we are at the cusp of creating biosimulation models for entire physiological systems which could provide key insights to understanding disease processes. Thus, NIH, NSF, and others have realized that building such a "Physiome" is a grand challenge for biology and informatics research. However, a myriad of problems must be addressed before it becomes possible to build multi-scale, multi-domain, physiologically predictive biosimulation models. In this talk, I will describe current efforts and challenges in this endeavor. Our research group uses *reference ontologies* and the concept of *semantic annotation* as an approach to building biosimulation models that are more modular. Our emphasis on reuse and modularity leads to a vision of model components that can be assembled and re-assembled for rapid, improved construction of large biosimulation models. For examples, I will draw on our prior work in modeling the circulation of the heart, as well as ideas for future work in pathway-level modeling and biosimulation for synthetic biology.

John Gennari, Ph.D. received his doctorate in Computer Science (in artificial intelligence) in 1990, and has been carrying out research in biomedical informatics since 1994, when he began working as a research scientist in the Stanford Medical Informatics group. His primary research focus is in knowledge representation and especially knowledge sharing. John is extensively published in the Biomedical Informatics literature, in application areas as diverse as clinical trial protocol management, health care guidelines, and cell-signaling pathways. Dr. Gennari joined the BHI faculty in 2002.

NOTE: Podcasts from MEBI 590 Lecture Series talks from earlier this quarter are available at <http://courses.washington.edu/mebi590/schedule.htm>

Podcasts from Fall Quarter 2007 are available at
<http://courses.washington.edu/mebi590/2007.Q4.Fall.htm>