Seminar: Alan Qi (CS Faculty Candidate)

Date & Time: Monday, March 5, 2007 @ 11:00 am
Location: Maryland 109

Title:
Bayesian Learning for Deciphering Gene Regulation

Abstract:
Gene regulation plays a fundamental role in biological systems. As more high-throughput biological data becomes available it is possible to quantitatively study gene regulation in a systematic way. In this talk I will present my work on three problems related to gene regulation: (1) identifying genes that affect organism development; (2) detecting protein-DNA binding events and cis-regulatory elements; (3) and deciphering regulatory cascades at the transcriptional level for stem cell development. To address these problems, I developed novel nonparametric Bayesian models, Bayesian semi-supervised learning methods, and approximate inference methods for loopy graphs. These methods capture key aspects of biological processes and make functional predictions, some of which were confirmed by biological experiments. I will conclude with a brief description of my plan for future research in computational biology and Bayesian learning.

Bio:
Yuan (Alan) Qi is a postdoctoral associate in MIT Computer Science and Artificial Intelligence Laboratory. He received the Ph.D. degree from the MIT Media Laboratory in February 2005 and the Master degree from the University of Maryland at College Park in June 2000. His research interests include Bayesian machine learning and computational biology. If you would like individual time with Dr. Qi, please contact Joel Bader, joel.bader@jhu.edu

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