Colloquium

Jiang Gui

Dartmouth Medical School

Friday, February 14, 2014 at 3 pm in Bell Hall 143

Quantitative Multifactor Dimensionality Reduction Method

We present an extension of the two-class multifactor dimensionality reduction (MDR) algorithm that enables detection and characterization of epistatic SNP-SNP interactions in the context of a quantitative trait. The proposed Quantitative MDR (QMDR) method handles continuous data by modifying MDRs constructive induction algorithm to use a T-test. QMDR replaces the balanced accuracy metric with a T-test statistic as the score to determine the best interaction model. We used a simulation to identify the empirical distribution of QMDRs testing score. We then applied QMDR to genetic data from the ongoing prospective Prevention of Renal and Vascular End-Stage Disease (PREVEND) study.