Reviewer's report

Title: A robustness study of parametric and non-parametric tests in Model-Based Multifactor Dimensionality Reduction for epistasis detection

Version: 1 Date: 20 September 2012

Reviewer: Jason Moore

Reviewer’s report:

This is a well-written paper on an important and timely topic. There is a growing recognition that gene-gene interactions will explain part of the missing heritability of complex traits. The authors report here tests of the assumptions of their method for detecting gene-gene interactions. The following are some suggestions for improving the paper.

1) It would nice to see an additional paragraph in the background section that reviews briefly the history of MDR, MB-MDR and where they came from. This is important for those readers not familiar with your method or the general area.

2) Overall, I found the paper to be well-written and technically sound. However, I worry that it may be difficult to digest except for those intimately familiar with this area. Would love to see a big-picture paragraph in the discussion at the beginning and/or end that puts this study in a broader context for the general bioinformatics reader.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests