



THE UNIVERSITY OF  
CHICAGO

Department of Statistics

MASTER'S THESIS PRESENTATION

---

LIN GUI

Department of Statistics  
The University of Chicago

Replicating Signals Detection with an Adaptive Filtering Procedure  
and its One Extension

MONDAY, February 10, 2020, at 2:00 PM  
Jones 111, 5747 S. Ellis Avenue

ABSTRACT

Replicability analysis aims to congregate outcomes from separate laboratories and discover consistent detectable signals across these studies. A common frequentist's method is testing a partial conjunction test to identify the signal's consistency. In many applied settings, however, thousands of partial conjunction tests need testing simultaneously which leads to the multiple testing issue. Compared to existing methods, the AdaFilter procedure successfully solves the error accumulation curse and meanwhile improves the power of the signal-detecting procedure. In this work, we investigate from the theoretical perspective to claim that FDR control is guaranteed in this procedure. We also give a solution to the testing sign consistency problem based on the original algorithm and show its superiority on simulated data.