University of California, Irvine
Statistics Department
Distinguished Lecture

Farming High-dimensional Significant and Important Variables

Jianqing Fan
Professor, Statistics
Frederick L. Moore '18 Professor of Finance
Director of the Committee on Statistical Studies
Princeton University

Tuesday, January 22, 2019
1 p.m., 6011 Bren Hall
(Bldg. #314 on campus map)

Correlated and heavy-tailed data arise frequently in a wide range of scientific and engineering problems, from genomics, medical imaging to neuroscience and finance. This talk introduces Factor-Adjusted Robust Multiple testing (FARM-test) and Factor-Adjusted Robust Model Selection (FARM-select). The former is introduced to control the false discovery proportion for large-scale simultaneous inference when variables are highly correlated and the latter deals the variable selection problems when covariates are highly correlated. We demonstrate that robust factor adjustments are extremely important in both improving the power of the tests and controlling FDP. We identify general conditions under which the proposed method produces a consistent estimate of the FDP. We also proved that factor adjustments significantly reduce the conditions needed for selection consistency. The results will be illustrated by numerical experiments. (Based on joint work with Yuan Ke, Qiang Sun, and Wenxin Zhou and that of Yuan Ke and Kaizheng Wang.)

For directions/parking information, please visit https://uci.edu/visit/maps.php and http://www.ics.uci.edu/about/visit/index.php