Stanford University
Department of Statistics

DEPARTMENTAL SEMINAR

4:30pm, Tuesday, October 20, 2015
Sequoia Hall Room 200
Cookies served at 4pm, 1st floor Lounge.

Speaker:  Tze Leung Lai, Stanford University

Title:  A New Approach to Test-Based Variable Selection

Abstract:

Test-based variable selection, as exemplified by partial F-tests in forward stepwise or backward elimination procedures in linear regression and their extensions to generalized linear and Cox regression models, preceded information-criterion selection and prediction-based selection procedures, and is still popular in software packages. After a brief review of these variable selection methodologies, highlighting their differences and similarities, we focus on applications in which test-based variable selection fits nicely into the goal of the study and its analysis but falls short of giving a valid overall test. In this connection, we also review recent developments in post-selection inference, which has become an active area of research. We then describe a new approach to test-based variable selection that yields a valid overall test, and illustrate its applications to fault diagnosis in multi-stage manufacturing processes.

This is joint work with Milan Shen and Ka Wai Tsang.