Statistics Seminar

Department of Mathematical Sciences

DATE:	Thursday, February 8, 2018
TIME:	1:15pm – 2:15pm
LOCATION:	WH 100E
SPEAKER:	Lin Yao, Binghamton University
TITLE:	Stability selection

Abstract

Estimation of structure, such as in variable selection, graphical modelling or clus- ter analysis, is notoriously difficult, especially for high dimensional data. We introduce stability selection. It is based on subsampling in combination with (high dimensional) selection algo- rithms. As such, the method is extremely general and has a very wide range of applicability. Stability selection provides finite sample control for some error rates of false discoveries and hence a transparent principle to choose a proper amount of regularization for structure estim- ation. Variable selection and structure estimation improve markedly for a range of selection methods if stability selection is applied. We prove for the randomized lasso that stability selec- tion will be variable selection consistent even if the necessary conditions for consistency of the original lasso method are violated. We demonstrate stability selection for variable selection and Gaussian graphical modelling, using real and simulated data.