

Statistics Seminar  
Department of Mathematical Sciences

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

**Abstract**

Estimation of structure, such as in variable selection, graphical modelling or cluster analysis, is notoriously difficult, especially for high dimensional data. We introduce stability selection. It is based on subsampling in combination with (high dimensional) selection algorithms. 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 estimation. 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 selection 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.

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