

SEMINAR

September 18, 2014 at 3:30pm

Sidney Smith Hall, Room 1083

Refreshments will be served at 3:15pm

Change-point detection for multivariate and object data

Hao Chen, University of California, Davis

After observing snapshots of a network, can we tell if there has been a change in dynamics? After reading chapters of a historical text, can we tell if there has been a change in authorship? We consider the testing and estimation of change-points – locations where the distribution changes – in a sequence of multivariate observations or non-Euclidean observations. We propose a new approach that utilizes graphs representing the similarity between observations. The new approach is non-parametric and can be applied to any data set as long as an informative similarity measure can be defined. Analytic approximations to the significance of the proposed statistics for both the single change-point and the changed interval alternatives are derived, and shown to be quite accurate in simulations. We illustrate the method through the analysis of a phone-call network from the MIT Reality Mining project and of the authorship debate of a classic western novel.



Statistical Sciences
UNIVERSITY OF TORONTO