Statistical Sciences
UNIVERSITY OF TORONTO

SEMINAR

October 16, 2014 at 3:30pm
Sidney Smith Hall, Room 1083
Refreshments will be served at 3:15pm

Two-sample Bayesian nonparametric goodness of fit test

Luai Al Labadi, United Arab Emirates University

Testing the difference between two data samples is of a particular interest in statistics. Precisely, given two samples $\boldsymbol{X} = X_1, \ldots, X_{m_1} \overset{i.i.d.}{\sim} F$ and $\boldsymbol{Y} = Y_1, \ldots, Y_{m_2} \overset{i.i.d.}{\sim} G$, with F and G being unknown continuous cumulative distribution functions, we wish to test the null hypothesis $H_0: F = G$. In this talk, we propose an effective and convenient Bayesian nonparametric approach to assess the equality of two unknown distributions. The method is based on the Kolmogorov distance and approximate samples from the Dirichlet process centered at the standard normal distribution and a concentration parameter 1. Our results show that the proposed test is robust with respect to any prior specification of the Dirichlet process. We provide simulated examples to illustrate the workings of the method. Overall, the proposed method performs perfectly in many cases.