COLLOQUIUM

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Tracking Flu Epidemics - Google Flu Trends and Particle Learning Algorithms

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A405 Wells Hall
10:20 a.m. - 11:10 a.m.
Refreshments: 10:00 a.m.

Abstract

In this talk we introduce a state-space tracking algorithm, based on combined particle learning (PL) and sequential Bayesian inference. The proposed algorithm is particularly well-suited to on-line learning and surveillance of infectious diseases – it is capable of assessing the probability of an epidemic, while simultaneously accounting for uncertainty in disease parameters and producing predictions in real-time. The PL method, which is based on efficient use of an essential state vector, is easy to implement, computationally fast, as well easily applicable to problems with complex non-linear dynamics. We illustrate this algorithm for tracking influenza with the Google Flu Trends data, taking a closer look at the spread of flu in the US during 2003-2009, and in New Zealand during 2006-2009.

To request an interpreter or other accomodations for people with disabilities, please call the Department of Statistics and Probability at 517-355-9589.