Statistics Seminar

Department of Mathematical Sciences

DATE:	Thursday, February 9, 2017
TIME:	1.15p-2.15p
LOCATION:	WH 100E
SPEAKER:	Grigory Sokolov, Binghamton University
TITLE:	Change-point detection in sensor networks

Abstract

Consider a random process that undergoes a statistical change at some unknown time. The pre-change behavior is assumed to be known, but after the change-point the distribution is only known to be one of (finitely) many. We consider the problem of detecting the time of change as soon as possible, while controlling the rate of false alarms.

In this talk we will establish certain optimality properties of various generalizations of the CUSUM rule. More specifically, we will show that their additional detection delay (relative to the one that could be achieved if the post-change distribution was known) remains bounded as the rate of false alarms goes to zero. Finally, we will extend the optimality results to a more general framework where certain constraints are imposed on inter-sensor communications.