THE UNIVERSITY OF CHICAGO | DEPARTMENT OF STATISTICS

MASTER'S THESIS PRESENTATION

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High-Dimensional Online Change-Point Detection

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ABSTRACT

Change point detection problems study the detection of a time point when the data generating mechanism changes. Most of the methods focused on offline problems. However, the online version is of more interest as modern technology facilitates the real-time monitoring of high-dimensional data. In this paper we discuss the online change-point detection (ocd) algorithm, which incorporates the methods from high-dimensional hypothesis testing problems into change-point detection problems. We test its performance when the assumptions are violated and find out that under time-dependent case the ocd algorithm does not perform well. We then propose a possible way to deal with time-dependent data and analyse its consistency using high-dimensional functional dependence measure and Nageav's inequality.