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Spectral-CUSUM for Online Community Change Detection

Tuesday, 14 September 2021 16:00 (30 minutes)

Detecting abrupt structural changes in a dynamic graph is a classic problem in statistics and machine learning. In this talk, we present an online network structure change detection algorithm called spectral-CUSUM to detect such changes through a subspace projection procedure based on the Gaussian model setting. Theoretical analysis is provided to characterize the average run length (ARL) and expected detection delay (EDD). Finally, we demonstrate the good performance of the spectral-CUSUM procedure using simulation and real data examples on earthquake detection in seismic sensor networks. This is a joint work with Minghe Zhang and Liyan Xie.

Keywords

CUSUM, change-point detection, networks

Special/invited session

Statistic for change point detection

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Session Classification: Breakdown detection

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