Partially Observable Multi-Sensor Sequential Change Detection with Adaptive Sampling Strategies

Abstract

This talk explores machine learning to address a problem of Partially Observable Multi-sensor Sequential Change Detection (POMSCD), where only a subset of sensors can be observed to monitor a target system for change-point detection at each online learning round. In contrast to traditional Multi-sensor Sequential Change Detection tasks where all the sensors are observable, POMSCD is much more challenging because the learner not only needs to detect on-the-fly whether a change occurs based on partially observed multi-sensor data streams, but also needs to cleverly choose a subset of informative sensors to be observed in the next learning round, in order to maximize the overall sequential change detection performance. In this talk, targeting at different types of data streams, we present several detection and adaptive sampling algorithms to tackle POMSCD.

Speaker

Dr. Chen Zhang
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Dr. Zhang Chen is an Assistant Professor in Industrial Engineering, Tsinghua University. Before joining Tsinghua, she was a research fellow of School of Information Systems, Singapore Management University. Dr. Zhang received her Ph.D. degree from National University of Singapore in 2017, and her B.Eng. degree from Tianjin University in 2012. Her research interests include developing methodologies and algorithms for complex or large-scale systems with multivariate or high-dimensional data, including intelligent sampling and sensing for data collection, data mining and information extraction for system modeling, and on-line monitoring and efficient anomaly detection for streaming data.

Details

Monday, September 23, 2019
11:00 AM - 12:00 PM

Seminar Room B1-1, SIS Basement
School of Information Systems, Singapore Management University, 80 Stamford Road, Singapore 178902, Singapore

We look forward to seeing you at this research seminar.

Register

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