Data Science Seminar

Hosted by Department of Mathematical Sciences

- Date: Tuesday, April 18, 2017
- Time: 12:00-1:00
- Room: WH-100E
- Speaker: Changqing Cheng (SSIE at Binghamton University)
- Title: Heterogeneous Recurrence Monitoring of Dynamic Transients in Ultraprecision Machining Processes

Abstract

In-situ monitoring and control of process variations are important for quality assurance in ultraprecision machining (UPM) processes. Recent advance in sensing and communication technology have fueled increasing interests to develop sensor-based monitoring approaches for anomaly detection in the UPM process. However, conventional approaches are limited in their ability to address the complex dynamics hidden in the nonlinear and nonstationary processes. As a result, it is difficult for them to effectively capture the process variations of UPM. We present a new heterogeneous recurrence monitoring approach for in-situ monitoring and predictive control of the UPM process, and it has the capability to detect the shift from stable to unstable cutting in UPM processes with an average run length of 1.

More details about the Data Science seminar can be found at https://www2.math.binghamton.edu/p/seminars/sml