

# International Conference on **Big Data Analysis and Data Mining**

May 04-05, 2015 Kentucky, USA

## **Real-time data-driven operational intelligence approach to prognostics and systems health**

**Hatim M Khatatbeh**  
George Washington University, USA

Modern engineered systems such as manufacturing systems, telecommunications systems, enterprise computing systems, etc., are becoming increasingly complex and dynamic consisting of various components including hardware and software. As the number of components and interactions increases, these systems become difficult to monitor, manage, and maintain. Moreover, these systems are subject to failure that can impact their availability, maintainability, reliability, and safety. Determining the health state of these systems using traditional approaches such as model-based or rule-based methods is becoming even more difficult as the number of interactions among system components grows. So, there is a pressing need for an automatic and efficient approach for health monitoring and failure detection to detect faults precursors on-time before it can lead to adverse events. In this research, we propose a generic real-time, data-driven, health monitoring and predictive approach to detect anomalies and patterns in large complex engineered systems. The enabling technologies are based on statistical and data mining techniques to extract failure precursors from systems operational data including software and hardware that is in the form of time series or contained in logs such as system event and error logs. The timely detection of faults precursors can lead to appropriate maintenance actions to be scheduled proactively to avoid catastrophic failures, reduce maintenance cost, and to improve the performance, reliability, and safety.

### **Biography**

Hatim M Khatatbeh received a BS (1995) in Computer Science from Yarmouk University, Irbid, Jordan, an MS (1998) in Computer Science from Wichita State University, Wichita, KS, an MS (2012) in Information Systems Technology from George Washington University, Washington, DC and is currently a PhD candidate in Systems Engineering at The George Washington University, Washington, DC. He has more than 17 years of experience in database development, administration, data warehousing, and maintenance as well as business intelligence systems and data analytics for both government and private organizations.

[hatim@gwmail.gwu.edu](mailto:hatim@gwmail.gwu.edu)

### **Notes:**