Title: Cybersecurity Data Analytics

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Abstract: The integration of data from numerous, disparate sources makes the transformation of those data into actionable information extremely difficult. Applying analysis, synthesis, and predictive modeling techniques to this problem space using human interaction would be impractical. This is especially true of converting data to information in situations which are rapidly changing and in which human life might be at risk. Addressing this problem space will require using adaptive Big streaming data analytics that can: (a) model cyber physical infrastructures that encompass realistically complex warfighter scenarios, (b) ingest the massive data sets needed to capture large-scale dynamic systems complexity, and (c) process and update the analytics results in a timely manner in order to test contrasting mechanistic models and drive the next set of analyses. Currently, there is no adaptive big data analytics framework that process data streams in real-time and adopt to changes in cyber physical environments, as well as in the heterogeneous data being received. In this presentation, I review UA approach to develop an Adaptive Big Data Analytics Environment (ABDAE) that can adjust computations to respond promptly to rapid changes in data and cyber physical environments. The hallmark of the ABDAE is its ability to dynamically adjust computations to respond efficiently to the data received from physical systems, environmental sensors and effectors. This capability will enable a unique decision support tool that can be deployed to increase the effectiveness of data driven analytics to improve performance, productivity and decision making processes, especially when we are dealing with crisis and disasters situations.