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Analytics and Artificial Intelligence: Deep Learning for Anomaly Detection
- A case study from the financial sector with application to process safety

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Abstract

This presentation reports on a case study from the financial sector with application to challenges in the field of process safety. Banks collect massive amounts of data from routine financial transactions. Some of the data is anomalous, is corrupt, or represents a signal that warrants follow-up attention from subject matter experts. Currently, review of such data is often a manual inspection which is time consuming, expensive, and limited to representative data sets. In this case study, we employ machine learning, deep learning to rapidly review historical data and tag anomalous data that represents a signal for follow-up attention. With this methodology, we are able to automate the manual process, quickly finding anomalies, dramatically reducing assessment time, expanding the range and volume of data that can be reviewed, and finding signals that previously would likely be missed. Benefits to the financial institution include major cost reductions and improvements in detection of fraud. Application of the machine learning/data assessment approach to process safety challenges may provide safety and cost-reduction benefits as well.