e-Manufacturing & Design Collaboration Symposium 2018

Invited Speech:

How to Use Streaming Analytics to Create a Real-Time Digital Twin

Mr. Brad Klenz

Principal IoT Analytics Architect

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About the Speaker

Brad Klenz is Principal IoT Analytics Architect at SAS. His responsibilities include the design and integration of analytics required by SAS' IoT solutions. His recent projects include the use of machine learning for energy and operational efficiency in smart building environments, and real-time streaming analytics for event identification on the power grid. He is a patent holder for streaming analytics methods for anomaly detection and event classification in IoT. He has contributed to research at NSF Engineering Research Centers at NC State University – the FREEDM center (power grid modernization) and the ASSIST center (nanotechnology healthcare wearables).

Brad has presented at a number of industry conferences, including SAS Global Forum, IEEE Power & Engineering Society (PES), North American SynchroPhasor Initiative (NASPI), INFORMS Analytics, and Smart Cities Connect. He is a member of the Industrial Internet Consortium (IIC) and active in the Industrial Artificial Intelligence task group and the Testbed work group. He also participates in RIoT, a start-up oriented IoT group.

Brad' s previous work includes analytics for digital marketing, such as marketing attribution, recommendation systems, and customer retention. He received a Bachelor of Science in Computer Science, with emphasis on numerical processing and economics, from North Carolina State University.

Abstract

As the Internet of Things (IoT) expands, connected devices are frequently located in remote places, operating in different physical environments. These devices communicate with control systems and with each other. It can be challenging to know and understand the environment in which these devices operate, and whether devices are operating properly and efficiently. To meet these challenges, you can create a "digital twin" of a device: a virtual representation of it in real time. A digital twin tells you how a device is operating, no matter where it is physically located. IoT devices have a number of sensors installed on them, as well as sensors for the environment around them. Analytics can bring this sensor data together to create a true real-time digital twin.