

Abstract Submitted
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Detecting Anomalies with Gaussian Process¹ YUE WANG, University of Rochester; SLAC National Accelerator Laboratory, ADI HANUKA, SLAC National Accelerator Laboratory — Common anomalies in particle accelerators are point anomaly, shift anomaly, and drift anomaly. The current troubleshooting procedures for the accelerator at SLAC are resources and time consuming. A method that is able to detect anomalies in real-time and report a list of potential causes of the anomalies will be presented in this talk. Gaussian Process (GP) fits the signal functions from limited noisy observations. GP was used to calculate the functional values and the derivatives in real time. Furthermore, we classified and visualized points leading to an anomaly using the predicted values with a matrix. We demonstrated the method on a Toy Model and accelerator simulation data set.

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