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CATHODE part 2: robustness and comparison to other methods

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We explore the robustness of the CATHODE (Classifier-based Anomaly detection THrough Outer Density Estimation) method against correlation in the input features. We also compare CATHODE to other related approaches, specifically ANODE and CWoLa Hunting. Using the LHCO R&D dataset, we will demonstrate that in the absence of feature correlations, CATHODE outperforms both ANODE and CWoLa Hunting, and even approaches the performance of a supervised classifier trained to distinguish data from background. Meanwhile, in the presence of feature correlations, CWoLa Hunting breaks down, while ANODE is robust. Here we demonstrate that CATHODE is also robust against correlations, maintaining its spectacular performance.

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