

# Efficient Resonant Anomaly Detection

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A key step in any resonant anomaly detection search is accurate estimation of the background distribution in each signal region. Data-driven methods like CATHODE accomplish this by training separate density estimators on the complement of each signal region, and interpolating them into their corresponding signal regions. Having to re-train the density estimator on essentially the entire dataset for each signal region is a major computational cost in a typical sliding window search with many signal regions. We present a new method which significantly reduces this computational cost, while retaining a similar high quality of background density estimation and sensitivity to anomalous signals.

## Track

Anomaly detection

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