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# Abstract

**Objectives/Scope:**

The high productivity technique of the land seismic data acquisition with tens of Thousands sensors in the field increases the amount of data that needs to be well Quality Controlled. This poses a huge challenge to the seismic acquisition contractors as well as clients. Due to various reasons, a shot gather may be anomalous that would need to be identified and corrected or eliminated from the data which will enhance the quality of the final product.

**Methods, Procedures, Process:**

To identify the anomalous shot gathers from a large amount of collected seismic data, a unique method will be proposed for anomalous shot gather detection based on anomaly detection algorithm (also named outlier detection) by extracting several features or attributes from the seismic shot gathers then, using them as input data to the anomaly detection algorithm. Selecting a perfect set of features is essential to successfuly detecting anomalous shot gathers. This process named as feature engineering that includes feature selection, feature extraction, and creating features.

**Results, Observations, Conclusions:**

Normal data were characterized based on three main creation steps; a probabilistic, statistical, or algorithmic model that define the methods of the core of all outlier detection. The knowledge of good specific domain for the underlying data is a decisive designing that will be used in a simple and accurate model. Large scope of outlier analysis will be testified for further research especially in a structural and temporal.

**Novel/Additive Information:**
Machine learning techniques have received considerable attention among the intrusion detection researchers to address the weaknesses of knowledge-based detection techniques. Many algorithms were used to achieve good results for these techniques. This abstract proposes one of them for anomaly detection in the Seismic data.