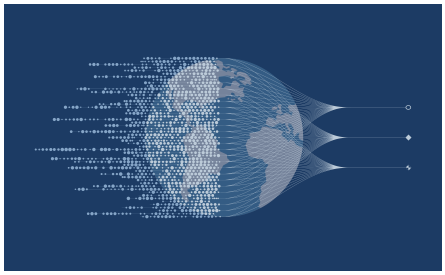

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-time Earthquake Detection Using YOLOv8 and Spectrogram Analysis

This research explores the application of the YOLOv8 object detection framework for real-time earthquake detection using spectrogram images derived from seismic data. The proposed method is a promising candidate for real-time event detection, with the potential to improve detection accuracy and reduce the risk of human error. By leveraging the strengths of YOLOv8, known for its speed and accuracy in object detection tasks, we propose a novel approach to identify and localize earthquake events within seismic signals. The methodology involves: Transforming continuous seismic data into time-frequency representations (spectrograms) and provide annotation mechanism to have labeled dataset, training a YOLOv8 model on a meticulously curated dataset of annotated earthquake spectrograms, and deploying the trained model for rapid event detection and localization.YOLOv8's ability to efficiently process images and generate high-quality bounding boxes for detected objects makes it a promising candidate for real-time event detection. The performance of the proposed system is rigorously evaluated using relevant metrics such as precision, recall, and F1-score. This research aims to contribute to the development of more efficient and accurate earthquake detection systems, potentially leading to improved seismic data analysis.

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