



Transfer Learning for Near-Real-Time Rocket Launch Detection

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Abstract:

This work presents an initial attempt to employ transfer learning to detect rocket launch sequences in near-real-time using YAMNet, a deep neural network trained to distinguish between 521 classes of audio events. A curated and annotated dataset containing audio data collected by a network of smartphones 10-100 km from launches of SpaceX Falcon 9 and ULA Atlas V rockets was fed first to the pre-trained network, after which a model designed and built for this work was then trained to predict rocket launch sequences from the results of the pre-trained network. The performance of this transfer learning model was evaluated separately on data collected at the training range (10-35 km) and at longer ranges (35-100 km) from launch sites.