FEW-SHOT BIOACOUSTIC EVENT DETECTION

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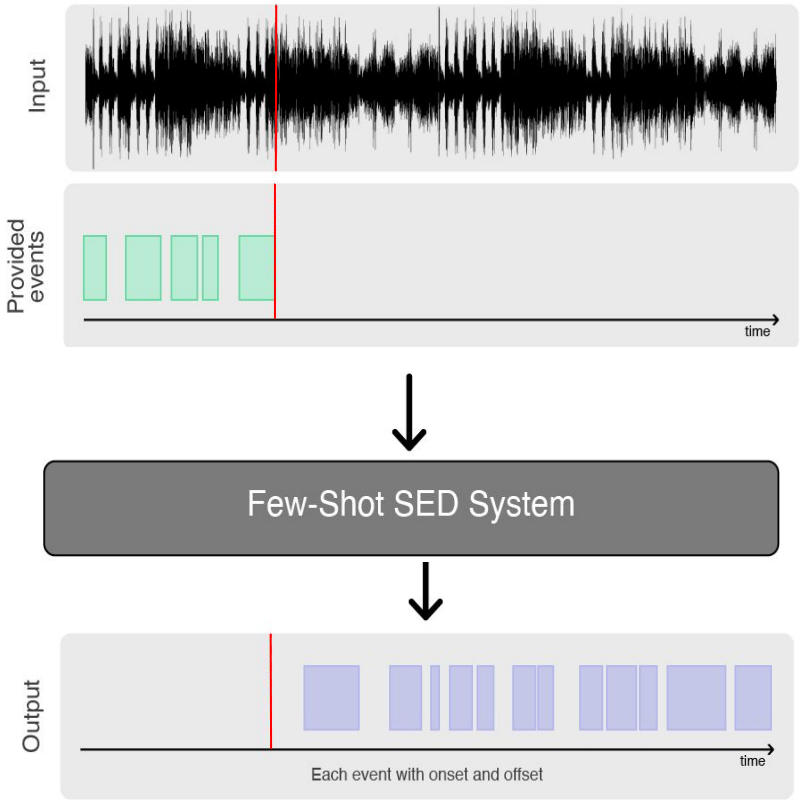
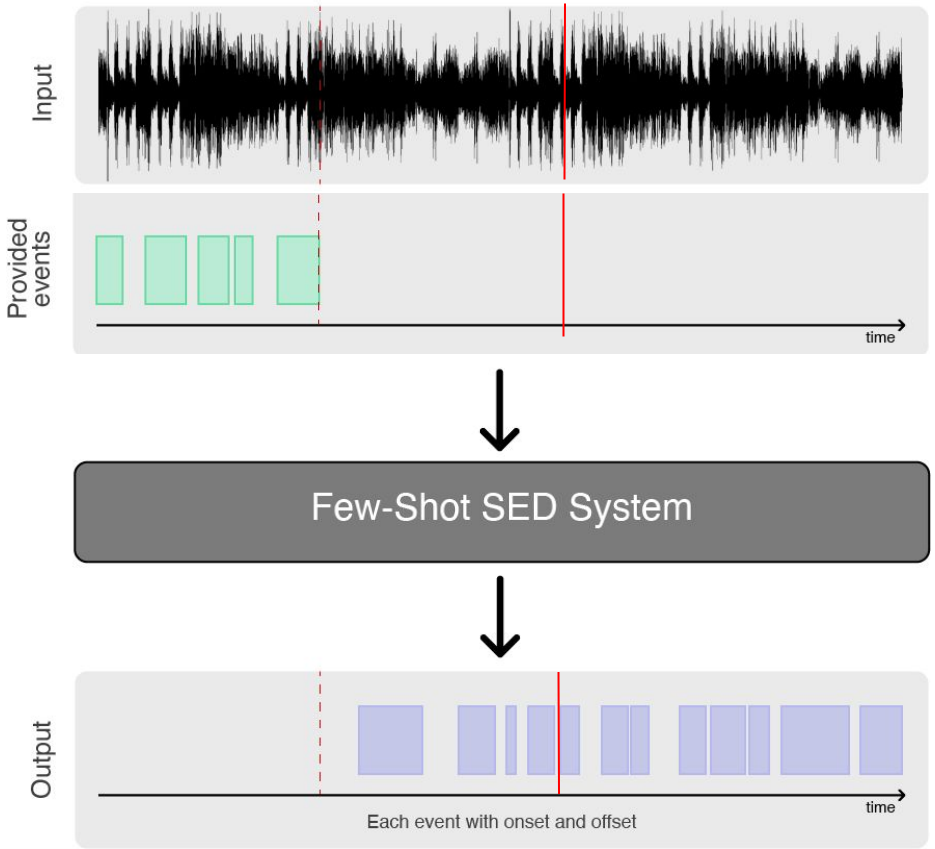


Task Description



Few Short Learning

Meta Learning

Learn on support set, predict on query set.

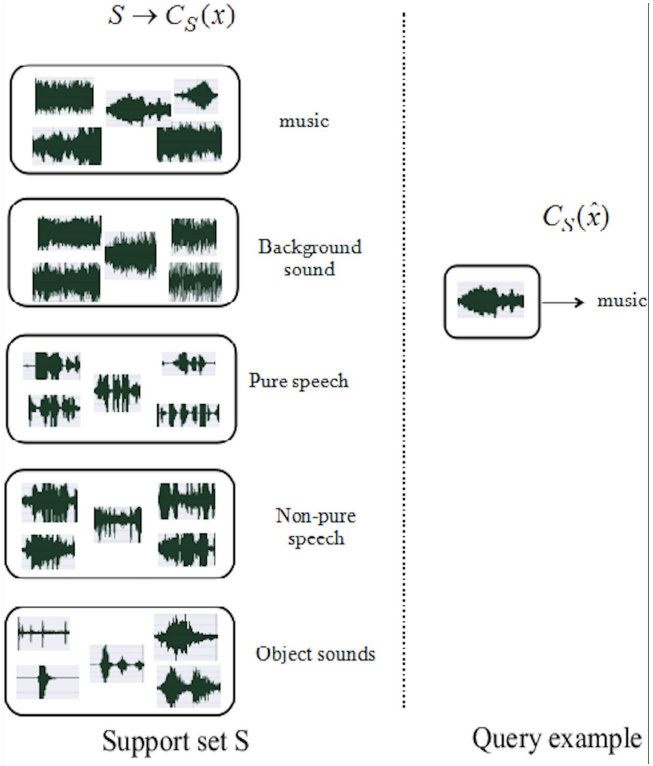
Learn embeddings using a distance/similarity loss function

Few Shot Learning for Audio

Transfer Learning

Use a Pretrained network

Fine tune model on data augmented support set



Zhang et. al. 2019

Challenges

- **Sparse Sound Events -** The sound events in the audio files are sparse with background noise, making it difficult to learn robust embeddings.
- **Sound Event Duration** - Length of sound events in training set is different to validation/evaluation set, making it difficult to predict the temporal boundaries of the sound events.
- **Data augmentation** - Augmenting on few data samples might lead to a skewed data distribution, leading the model to overfit.
- **Transfer Learning** - Fine tuning a pre-trained model on a few data samples hinders feature migration.
- **Distinct tasks** - Meta learning framework not only samples the data space but also the task space, hence when the training task and the target task are distinctly different, the effect of meta-learning is minimal (Song et. al. 2022)

Thank you to all the organizers and participants!