Birds Species Classification Using HRNet Model

In our project, we use the dataset of 62 bird species from different sources including Kaggle and ebird.org. After the dataset collection, we manually listen all the audio recordings of the collected sound of the birds and remove the sounds that produces noise. After that, we step into the coding part where we preprocess the audio files and convert it into spectrogram by extracting the features from the audio recordings. After that we made the respective folder of all the spectrograms of the audio datasets of both validation data and train data which we use for further processing. In the second part of the code, we simply, generate the data by using data reader class and load the training data and validation data. We use one percent of our data for testing by splitting the train data. In third part, we created the HRNet Model Architecture. In fourth part, we train the data using HRNet model. It takes around one week to train the model up to 47 epochs and it stopped there due to some technical issue which we could not figure out. We have written the code to store the train data and validation data accuracy and loss in excel sheet. We made the accuracy curve based on those data. We after that again tried to start our training from beginning but due to lack of time, we were not able to complete that on time.

We have decided to take this project for further analysis. In this semester we learnt the pipeline for audio processing in deep learning from data collection to model training. After the proper model development, we will work on deploying this model in any website or app for classification of the birds based on audio which helps to monitor the bird’s species in environment.

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