

Lab 3 Homework Template

Your Name Here

2020-08-25

Part 1. Loading a sound file and making a spectrogram

Question 1. What differences do you notice about gibbon and great argus spectrograms?

YOUR ANSWER HERE

Part 2. Visualizing differences in gibbon and great argus calls

Question 2. Do you see any differences in the spectrogram of the great argus calls that are clustered together and the outlier?

YOUR ANSWER HERE

Part 3. Soundscapes

Question 3. You can listen to example sound files on the Canvas page. Between looking at the spectrograms and listening to the sound files what do you think are the main differences between the different locations and times?

YOUR ANSWER HERE

Part 4. Analyze your own data

Part 4a. Your focal recordings

Here is the function to extract the features. Again, based on the frequency range of your focal recordings you may want to change the frequency settings.

```
MyFeatureDataFrame <- MFCCFunction(input.dir = "MyFocalRecordings",min.freq = 200,max.freq=2000)
```

Then we run the principal component analysis

```
pca_res <- prcomp(MyFeatureDataFrame[, -c(1)], scale. = TRUE)
```

Now we visualize our results

```
autoplot(pca_res, data = MyFeatureDataFrame,  
         colour = 'Class')
```

Part 4b. Soundscape recordings

We extract the features.

```
MySoundscapeFeatureDataframe <-  
  MFCCFunctionSite(input.dir = "MySoundscapeRecordings",min.freq = 200,max.freq=10000)
```

Now we visualize our results

```
pca_res <- prcomp(MySoundscapeFeatureDataframe[,-c(1)], scale. = TRUE)  
autoplot(pca_res, data = MySoundscapeFeatureDataframe,  
  colour = 'Class')
```

Question 4. Do you see evidence of clustering in either your focal recordings or soundscape recordings?

YOUR ANSWER HERE