

EC5011-TASK 2

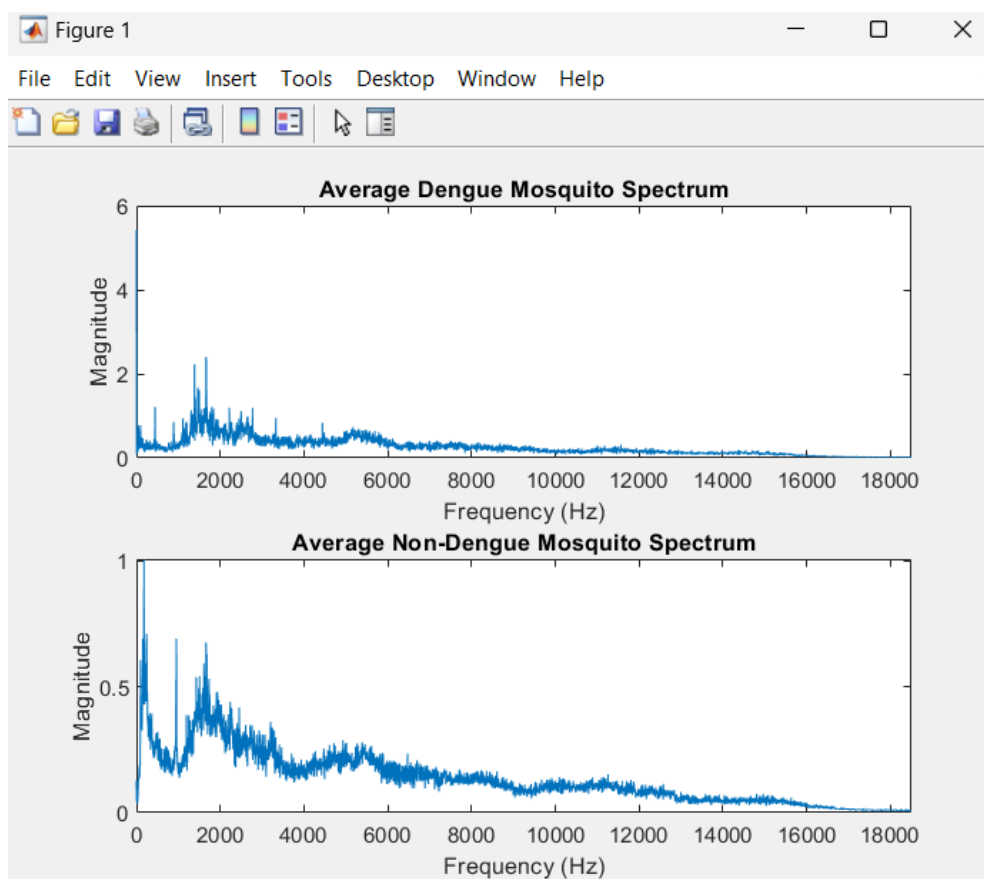
MOSQUITO CLASSIFICATION USING SIMPLE FILTERS.

2021/E/053 & 2021/E171

- Two folders for train and test audios were created. Dengue and non-dengue folders were created in each train and test folder. Audios were divided into relevant folders as most of the audios were in test folder to improve accuracy. Then, the MATLAB folder also was created in the same folder as the training and testing folders.
- Assuming the sample rate is 44100Hz, dengue bandwidth is 10 - 3150Hz and non-dengue bandwidth is 3200 - 8250Hz.
- The FFT of each dengue and non-dengue audio files were calculated, extracted, and stored in an array.
- Using the mean energy ratios of dengue and non-dengue data, the threshold value was calculated.
- A classifier was trained to classify test data and functions were defined to read all audio files in a directory and to extract features from audio. Using classified test data and created functions dengue accuracy, non-dengue accuracy, and overall accuracy were defined.

First accuracy results:

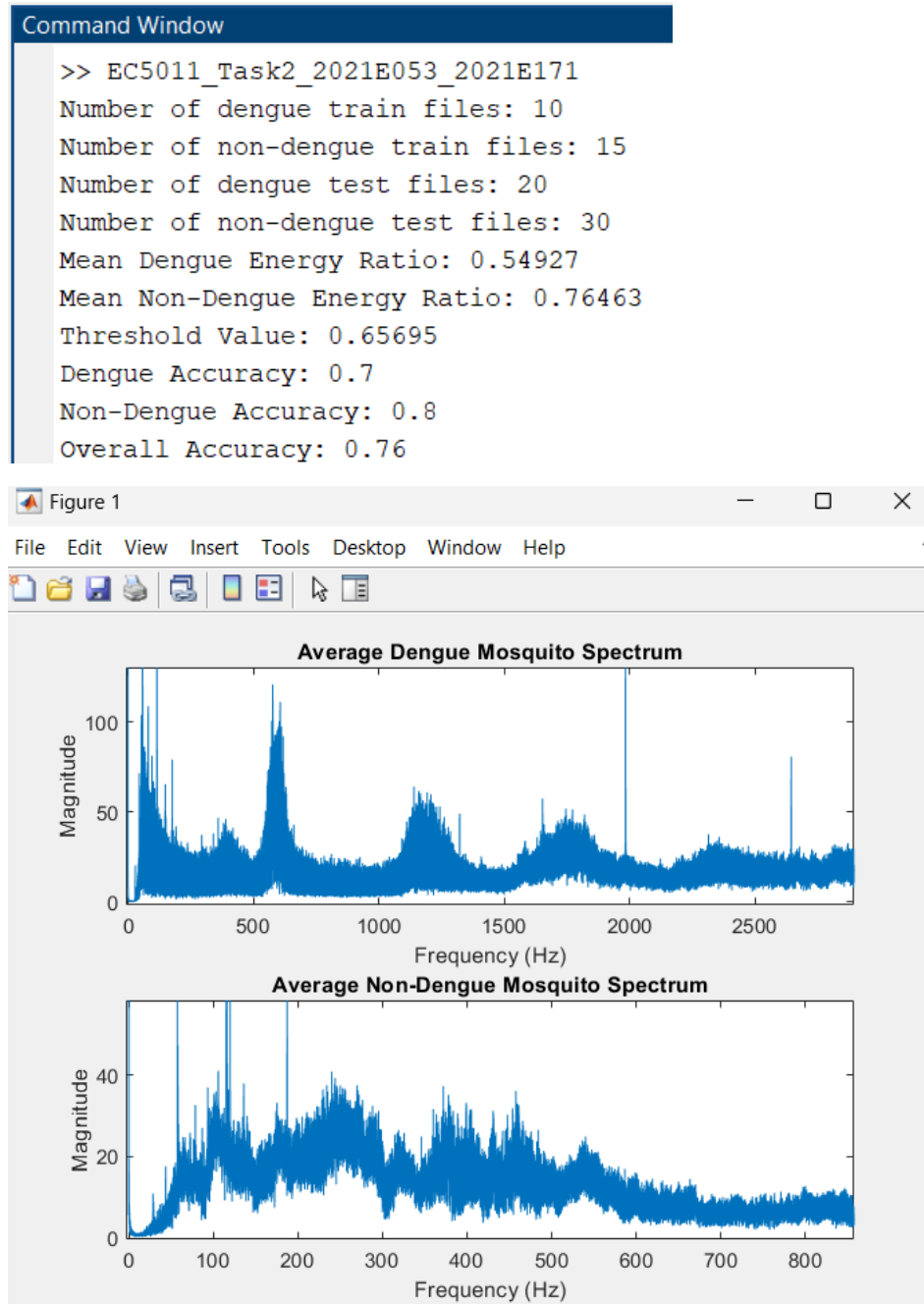
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>> EC5011_Task2_2021E053_2021E171
Number of dengue train files: 10
Number of non-dengue train files: 23
Number of dengue test files: 20
Number of non-dengue test files: 92
Dengue Band: 1 600
Non-Dengue Band: 1 777.9747
Dengue Accuracy: 0.55
Non-Dengue Accuracy: 0.79348
Overall Accuracy: 0.75
```



Methods followed to improve accuracy further:

- The sample rate was assumed as either 8000Hz or 44100Hz.
- The bandwidth/ frequency range of each dengue and non-dengue was changed.
- The filter order was changed.
- The number of files in each testing and training folders were changed.

After further modifying accuracy results:



Dengue Accuracy = 70%

Non- Dengue Accuracy = 80%

Overall Accuracy = 76%