提取频域特征

- import numpy as np
- import matplotlib.pyplot as plt
- from scipy.io import wavfile
- from python_speech_features import mfcc, logfbank
- '''　功能作用 : 提取频域特征　梅尔频率倒谱系数（Mel Frequency Cepstrum Coefficient，MFCC）
- freq_transform.py 如何将信号转换为频域,在多数的现代语音识别系统中，人们都会用到频域特征。将信号转换为频域之后，还需要将其转换成有用的形式,而mfcc就可以解决这个问题　Kaldi特征提取之-FBank　logfbank，log是自然对数　　'''
- # 读取输入音频文件
  - sampling_freq, audio = wavfile.read("input_freq.wav")
- # 提取MFCC和过滤器组特征提取MFCC和过滤器组特征
  - mfcc_features = mfcc(audio, sampling_freq)
  - filterbank_features = logfbank(audio, sampling_freq)
- # 打印参数
  - print ('\nMFCC:\nNumber of windows =', mfcc_features.shape[0])
  - print ('Length of each feature =', mfcc_features.shape[1])
  - print ('\nFilter bank:\nNumber of windows =', filterbank_features.shape[0])
  - print ('Length of each feature =', filterbank_features.shape[1])
- # 画出特征图
  - mfcc_features = mfcc_features.T
  - plt.matshow(mfcc_features)
  - plt.title('MFCC')
  - filterbank_features = filterbank_features.T
  - plt.matshow(filterbank_features)
  - plt.title('Filter bank')
  - plt.show()