gtf.py executes the GTF_{F0} method proposed in [1] to improve the intelligibility of noisy speech signals.

This function requires
The emd.py file for the decomposition in the HHT-Amp F0 estimation

Usage:
procSignal = gtf(signalFile, 'voicedInfo.txt', bwFactor, gain)

where
signalFile: input .wav filename
voiced_regions: TXT file with regions of voiced speech (refer to the example file)
bwFactor: Value that defines the filters bandwidth (default: 0.25)
gain: Gain factors of the filtered samples with the following configuration:
gain = 1.0 - for no amplification
default values (for the first 4 filters):
gainValues = [5.0, 5.0, 4.0, 2.5];

Reference:

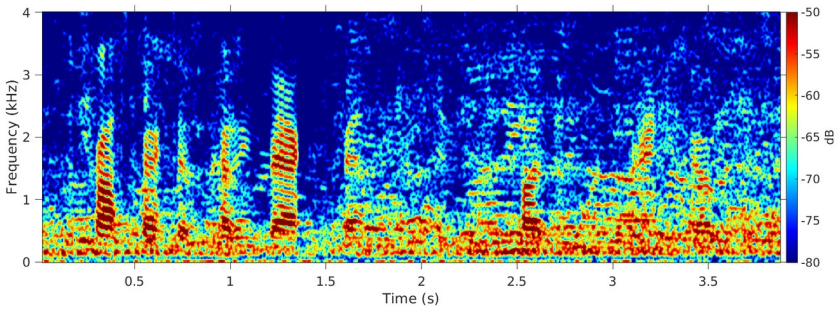
[1] A. Queiroz e R. Coelho, "F0-based Gammatone Filtering for Intelligibility Gain of Acoustic Noisy Signals", IEEE Signal Processing Letters, v. 28, pp. 1225-1229, May 2021.

%%%

Contents of HDAG.zip:
gtf.py - the algorithm python file
README.pdf – this file
emd.py – eemd python functions
speech_sample.wav – a sample speech file corrupted by Babble noisy with SNR = 0 dB.
voicedInfo.txt – example file that defines, in ms, the initial and final time instants of each voiced region of the input speech signal
example.py – example file.

%%%

Spectrogram of the noisy speech sample:



Spectrogram of the noisy speech sample processed by the GTF_{F0} method:

