fsffe.py executes the error correction in the fundamental frequency estimators as proposed in [1].

This function requires:
The PEFAC[1] estimator files provided in http://www.ee.ic.ac.uk/hp/staff/dmb/voicebox/voicebox.html

Usage for adjustment of candidates attained from any pitch estimation method:
timeCands,improvedCandidates,timePefac,lowHighCategory=fsffe.adjustCandidates(sig,fs, candidates,timeShift=10,lowHighTresh=200,nIMF=4,maxIter=100,nEns=100,noiseRatio=0.01)

Usage for a composition of FSFFE and HHT-Amp [2] F0 estimator:
timeEst,pitchEst=fsffe.fsffe_HHTAmp(sig,fs,voicedFile=vUvFile,shift=10,lowHighTresh=200, nIMF=4,maxIter=100,nEns=100,noiseRatio=0.01)

where
sig: input sample signal sequence
fs: sample rate (default: 16000)
candidates: matrix with time, in ms, in the first column followed by the F0 candidates

optional parameters:
voicedFile: TXT file with regions of voiced speech (refer to the example file)
timeShift=shift: time distance, in ms, between F0 estimates (default: 10)
lowHighTresh: Threshold of low/high frequency (default: 200)
nIMF: number of IMFs extracted with the EEMD (default: 4)
maxIter: maximum number of iterations for the EEMD (default: 100)
nEns: number of ensembles adopted for the EEMD (default: 100)
noiseRatio: noise ratio adopted for the EEMD (default: 0.01)

References:
[1] A. Queiroz e R. Coelho, "Noisy Speech Based Temporal Decomposition to Improve Fundamental Frequency Estimation", IEEE/ACM Transactions on Audio, Speech and Language Processing, v. 30, pp. 2504-2513, July 2022.

[2] L. Zão and R. Coelho, "On the Estimation of Fundamental Frequency From Nonstationary Noisy Speech Signals Based on the Hilbert–Huang Transform", IEEE Signal Processing Letters, v. 25, n. 2, pp. 248-252, February 2018.

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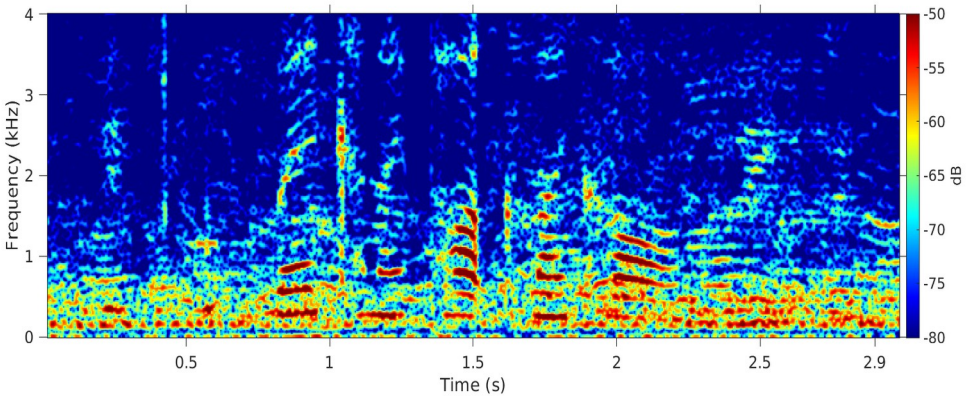
Spectrogram of the example speech signal:



F0 values obtained with the FSFFE + HHT-Amp using default parameters in voiced segments:

