This function (HHT_Amp) executes the F0 (fundamental frequency) estimator proposed in [1].
It requires the emd.m file provided by G. Rilling and P. Flandrin at
http://perso.ens-lyon.fr/patrick.flandrin/emd.html.

Usage:
   F0 = HHT_Amp(infile,opts,voiced_regions)
        or
   F0 = HHT_Amp(infile,struct([]),voiced_regions) for default parameters
        or
   F0 = HHT_Amp(infile) for default parameters considering the entire signal as voiced speech

where
 infile: input .wav filename
 opts: structure with the following optional parameters
     opts.MaxIter: maximum number of iterations for the EEMD (default: 200)
     opts.nIMF: number of IMFs extracted with the EEMD (default: 3)
     opts.nEns: number of ensembles adopted for the EEMD (default: 100)
     opts.NoiseRatio: noise ratio adopted for the EEMD (default: 0.01)
     opts.window: window length, in ms, for the F0 estimation (default: 64)
     opts.shift: time shift, in ms, between consecutive frames for the F0 estimation (default: 10)
     opts.fs: sampling frequency for the computation of the ACF (default: 32000)
     opts.nCand: maximum number of F0 candidates (default: 10)
     opts.selNeigh: number of neighboring frames for the selection of F0 candidates (default: 3)
     opts.selR: threshold R for the selection of F0 candidates (default: 0.2)
 voiced_regions: TXT file with regions of voiced speech (refer to the example file)

 Reference:
   [1] 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.

%%

Contents of HHT_Amp.zip:
HHT_Amp.m – the algorithm MATLAB file
README.pdf – this file
speech_sample.wav – a sample speech file
voiced_regions.txt – example file that defines, in ms, the initial and final time instants of each voiced region of the input speech signal.

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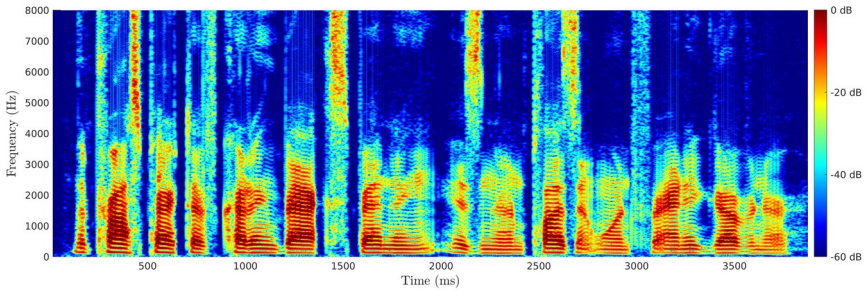
Spectrogram of the example speech signal:



F0 values obtained with the HHT_Amp function using default parameters:

