



Using the SpeechMark MATLAB Toolbox for Syllabic Cluster Analysis

SpeechMark MATLAB Toolbox

The SpeechMark MATLAB Toolbox is a platform-independent add-in to the MATLAB language and computation environment, developed by MathWorks. This Toolbox adds acoustic landmark detection and visualization tools, methods, and scripts to MATLAB.

Downloading

This product is a standard MATLAB toolbox. To use it, a valid instance of MATLAB (version R2010b or newer) must be installed, as well as a valid version of the MATLAB Signal Processing Toolbox.

- The SpeechMark MATLAB Toolbox can be downloaded from the SpeechMark website <http://www.speechmrk.com/Products.php> .
- The download link will be sent to your e-mail address. Check your spam/junk e-mail if you do not see an e-mail for 'donotreply@speechmrk.com' in your inbox.
- The file will be downloaded as a zipped file 'SMMLToolBox_v0.1.8'.
- Find the SMMLToolBox_v0.1.8 folder in your Downloads folder. You may choose to move this to your Desktop or another preferred directory .
- Unzip the SpeechMark Matlab toolbox folder and the zipped 'Contents' folder within.

Setting the Path

To add the SpeechMark MATLAB toolbox to MATLAB you will need to set the path in MATLAB

File > Set Path > Add with Subfolders > Browse for Folder > Select 'SMMLToolBox_v0.1.8' > Save

Syllabic Cluster Analysis

A special feature of the SpeechMark MATLAB Toolbox is a routine that groups landmarks into clusters of acoustic patterns marking the different syllables of English. Syllabic Cluster Analysis uses six of the eight abrupt landmarks detected (+/-g, +/-b, +/-s). The algorithm identifies the landmark types and groups the sequences into syllabic clusters. The forty possible syllabic cluster sequences recognized are based primarily on the predicted order of landmarks for various syllable shape types. The script used for analysis yields the following measures: the number of landmarks, syllabic clusters, landmarks per syllable, syllables per utterance, as well as the duration of each utterance.

To analyze a wave file:

- Open syllabiccluster.m file in MATLAB
- Locate the file to be analyzed. For PC's : Shift and right click. Select copy as path
- Paste directory in the syllabic cluster script opened in the MATLAB Editor
ex. "C:\Users\Public\Documents\SpeechMarkWSPluginExamples\spx1.wav"
- Change double quotation marks to single quotation marks to create a string that Matlab can process.
ex. 'C:\Users\Public\Documents\SpeechMarkWSPluginExamples\spx1.wav'
- Run the script. The output will be generated in the MATLAB Command Window.