Code explanation

**1. Run\_whole\_process.m** : It is the main function and can run whole recordings in one folder, and also user can use it run one single recording in the whole folder.

* Run more than one recording Input: Folder name (Please don’t forget the last ‘/’ of the folder name).

Expected output: Systole/ Diastole ratio (S/D ratio) and a figure shows S1 S2 segmentation result.

* Run one recording Input: Use variable S to achieve one recording selection process.

Expected output: Systole/ Diastole ratio (S/D ratio) and a figure shows S1 S2 segmentation result.

**Note**: Down sample is designed **only for Echoes recordings**. Current frequency of Echoes recording is 44100 Hz.

**2. exponentialMA** is the name of the signal after pre-process. This is the input signal of all the further functions.

**3. locs** are the locations of detected S1 and S2 peaks, **pks** are the amplitude value of the detected S1 and S2 peaks.

**4.** SYS\_min,SYS\_max are the thresholds for systolic duration detection. DIA\_min,DIA\_max are the thresholds for Diastole duration detection.

**5. Label signal in the MATLAB: Use the function** signalLabeler.