Description update, 18.09.2016

The main Matlab file batch.m has been converted to a function with the name GetWav().

Function GetWav without parameters have identical functionality with the old batch.m, but default setting of parameters in the structure Param changed. In particular, the following parameters were changed:

Param.LVDFile = false; %was true
Param.NFiles = 1; %was 12; number of files in which the record can be split
        for convenience of further processing (for "full record" mode only)

When "LVDFile" is false, no LVD files are generated.
The value "NFiles" determines the number of output files for "full record" setting.

The function GetWav can be called with the following parameters

GetWav('C:\Test\MyData\MyFile.dat') – converts the specified file to
        MyFile.wav placed in the same directory C:\Test\MyData.

GetWav('C:\Test\MyData\MyFile.dat',3) – converts the specified file to
        three files [MyFile.wav MyFile-00002.wav MyFile-00003.wav] of
        approximately equal size with sequential pieces of data, placed in
        the same directory C:\Test\MyData. Instead of '3' any integer number
        above zero can be used.

GetWav('C:\Test\MyData\MyFile.dat',3,'C:\Test\MyDataWav') – the same as
        before, but newly generated files will be placed in the directory
        'C:\Test\MyDataWav'. If this directory does not exist, it will be
        created.

GetWav('C:\Test\MyData\MyFile.dat',3,'C:\Test\MyDataWav',40,80) – the same
        as before, but the microphone output will be amplified 40x, and the
        accelerometer output – 80x. The default amplifications are 80, 80.
        Scaling is introduced to increase loudness of WAV files.

GetWav('C:\Test\MyData\MyFile.dat',3,'C:\Test\MyDataWav',40,80,RecStart) –
        the same as before, but with specified start of the record. RecStart
        is a DateTime value in standard Matlab format, i.e.
        RecStart = datenum([2013 12 13 07 00 00]);

If some parameters should not be changed, one can put an empty arrays at
their places. For instance, if one needs to have proper date and time of
WAV files like they were recorded in real time, the record start time
should be specified as:

RecStart = datenum([2013 12 13 07 00 00]);
GetWav('C:\Test\MyData\MyFile.dat',[],[],[],[],RecStart)

Description update, 10.05.2015

In case if files produced by National Instruments-based recorder system are
not generated, the original code given in Supplementary software of our
Nature Methods article does not work. To permit to use our code for
vocalization extraction exclusively from the Backpack data, the code has
been updated.

Additionally, possibility of generation of standard WAV files has been added.

The following additional parameters appeared at the beginning of batch.m file:

Param.WavFile = true; %wav file will be generated
  Param.WAVCoeff = [80 80]; %This is to increase loudness 80x for better
          WAV hearing, [microphone accelerometer]
Param.Synchronization = false; %no synchronization
  Param.SynchronizationTime = datenum([2013 12 13 07 00 00]);
          %Format: Year, Month, Day, Hour, Minute, Second;
          is used when Synchronization = false; real start is unknown
  Param.AnimalName = 'g2k8'; %is used when Synchronization = false;
          animal name can't be taken from NI LVD

The first parameter "WavFile" determines whether additional WAV files are generated or not. LVD files are always generated. The generated WAV file has two channels: backpack microphone and accelerometer. The sampling rate of WAV file is identical to sampling rate of LVD file. I.e. it can be 19200 or 32000 Hz. The first sampling rate is the logger default sampling rate and is recommended if your sound card is capable to play files with this sampling rate (otherwise select 32000 Hz that is more standard).

The second parameter "WAVCoeff" determines coefficients of amplification for two channels. The original Backpack record has different from standard 16-bit WAV record scale. Thus, to get normal good loudness one has to scale Backpack record 80x approximately. This parameter determines this scaling coefficient. If your record has another loudness, there may be a need to change these scaling coefficients. If WavFile=false, WAVCoeff has no influence

The third parameter "Synchronization" determines whether National Instruments files are used for synchronization. If these files are absent, this parameter should be "false". If synchronization is not used, the format of output LVD files does not change and unavailable data fields are filled with corresponding Backpack data. Instead of wall microphone channel and playback channel the backpack microphone channel is placed, instead of computer synchronization channel the Backpack synchronization channel is placed.

The fourth parameter "SynchronizationTime" is used only when Synchronization is false. You should put date and time of the record start to have proper time in generated LVD and WAV files.

The fifth parameter "AnimalName" is also used only when Synchronization is false. In this case animal name can't be taken from National Instruments files and should be specified here explicitly to put it in the names of generated files.