Compiling REAPER (Robust Epoch And Pitch Estimator)

Cong Zhang, 28/5/2021

This is a brief tutorial for compiling and installing **REAPER** (David Talkin, <https://github.com/google/REAPER>).

If you have never used C/C++, it takes some time downloading and configuring the correct things. I hope these procedures are helpful. I would also like to thank all the authors of the tutorials I cited in this tutorial. Without those tutorials, I would never be able to install REAPER. I hope this tutorial benefit others, like those tutorials benefited me.

These procedures are only tested on Windows 10.

1. Choose a folder for REAPER

e.g. I chose the Documents folder: `C:\Users\congzhang\Documents`

2. Open `Command Prompt` on your computer. You can find it by simply typing `cmd` in your `Start` menu. If you don't know how to find it, google "find cmd windows 10".

3. Change the directory to where you want to keep the REAPER folder. In my case, it is

```
cd Documents
```

4. Follow the instructions on REAPER's github page and do:

```
git clone https://github.com/google/REAPER.git # downloading the codes
cd REAPER                                     # change directory to the REAPER
folder
mkdir build                                   # creating a new folder 'build'
cd build                                     # change directory to 'build'
```

5. Add this path to the environment variable.

```
C:\Users\sprin\Documents\REAPER\build
```

If you do not already know how to add paths to the environment variable, here is a useful [tutorial](#).

6. Download `cmake` [here](#). I downloaded this version: `cmake-3.20.3-windows-x86_64.msi`.

7. Now you should have a new directory full of `.exe` files here:

```
C:\Program Files\CMake\bin
```

8. Add the above path (`C:\Program Files\CMake\bin`) to the environment variable.

9. Download Microsoft Visual Studio (2019)

Follow [this tutorial](#) to download and install Microsoft Visual Studio and the relevant tools. The video is for downloading the 2017 version, but it's basically the same for 2019. Install the `Desktop development with C++` component. This is quite large. You need at least 7 GB free space on your computer.

10. Add these paths to the environment variable.

```
C:\Program Files (x86)\Microsoft Visual  
Studio\2019\BuildTools\VC\Tools\MSVC\14.29.30037\bin\Hostx64\x64  
C:\Program Files (x86)\Microsoft Visual  
Studio\2019\BuildTools\VC\Tools\Llvm\bin
```

11. Follow [this tutorial](#) to download and install MinGW.

The key is to download both `mingw32-base` and `mingw32-gcc-g++`.

Add this path to the path variable:

```
C:\MinGW\bin
```

12. Continue with following the instructions on the REAPER github page:

```
cmake ..
```

13. If the error message reports some skipings because it cannot find C++11.

Use `cmake -G "CodeLite - MinGW Makefiles" ..` instead of `cmake ..`

14. So now you should have these new paths in your environment variable:

```
C:\Users\sprin\Documents\REAPER\build  
C:\Program Files (x86)\Microsoft Visual  
Studio\2019\BuildTools\VC\Tools\MSVC\14.29.30037\bin\Hostx64\x64  
C:\Program Files (x86)\Microsoft Visual  
Studio\2019\BuildTools\VC\Tools\Llvm\bin  
C:\MinGW\bin  
C:\Program Files\CMake\bin
```

15. Continue with following the instructions on the REAPER github page:

`make`

16. If you come across an error message about not being able to find 'make.exe'. Follow this [tutorial](#):

- As explained [here](#), create a new file in any of your PATH folders. For example create `mingwstartup.bat` in the MinGW bin folder. write the line `doskey make=mingw32-make.exe` inside, save and close it.
- open Registry Editor by running `regedit`. As explained [here](#) in `HKEY_LOCAL_MACHINE` or `HKEY_CURRENT_USER` go to `\Software\Microsoft\Command Processor` right click on the right panel `New --> Expandable String Value` and name it `AutoRun`. double click and enter the path to your .bat file as the Value data (e.g. `"C:\MinGW\bin\mingwstartup.bat"`) the result should look like this:

now every time you open a new terminal `make` command will run the `mingw32-make.exe`.

17. Always remember to delete this file when you come across errors and have to run the codes again: `"C:\Users\congzhang\Documents\REAPER\build\CMakeCache.txt"`

18. The compiling is successful when you have a `reaper.exe` file in the `"C:\Users\sprin\Documents\REAPER\build"` folder.

19. To use the program, you can run something like the following line in the command prompt:

```
reaper -i "C:\Users\congzhang\test.wav" -f "C:\Users\congzhang\test.f0" -p "C:\Users\congzhang\test.pm" -a
```

The `.wav` file is the file you want to analyse; the `f0` file gives you the values of `f0`;

20. You can use `reaper -help` to check what other things you can do and what the output files are.

This is where I've got so far. I will update this file when I have more information that I think are helpful.

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