MANIFIT user guide
Sample application of the audio pitch converter module
⟨ p_shifter.cpp ⟩

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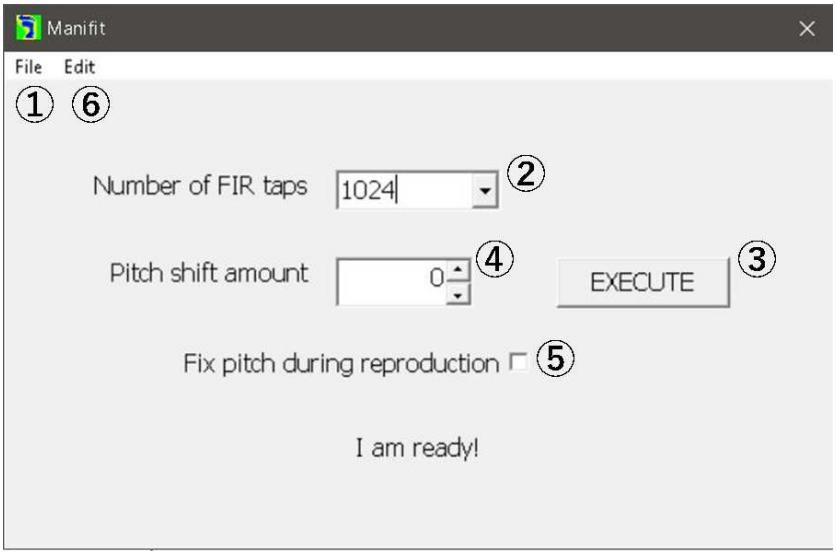

Fig. 1: Main window
The main window of 'manifit.exe' has 'File' menu, 'Edit' menu, 'EXECUTE / STOP button,' a dropdown list, a spin control and a check box.

1 Preface

'Manifit' is the realtime audio pitch converter. By using 'manifit.exe,' you can manipulate the pitch of the sound during reproducing a WAV file. The pitch of the sound can be converted in semitone steps between -36 semitones and 36 semitones. The controllable range of the pitch is as wide as 6 octaves overall.

'Manifit' is a sample project to show how to use the audio pitch converter module 'p_shifter.cpp.' The pitch conversion is done by convolution of a time-varying FIR filter with the audio data. The generation and convolution of the time-varying filter are executed in 'p_shifter.cpp.' The C++ program 'p_shifter.cpp' is open source under the MIT license.

'Manifit' is assumed to be built (compiled) in Visual Studio 2015 and 'winmm.lib' must be linked.

2 Main window

Fig. 1 shows the main window of 'manifit.exe.' Open a WAV file by the file menu (① in the figure). Select the value of 'Number of FIR taps' from the dropdown list (②) if necessary. By pressing the 'EXECUTE / STOP button'

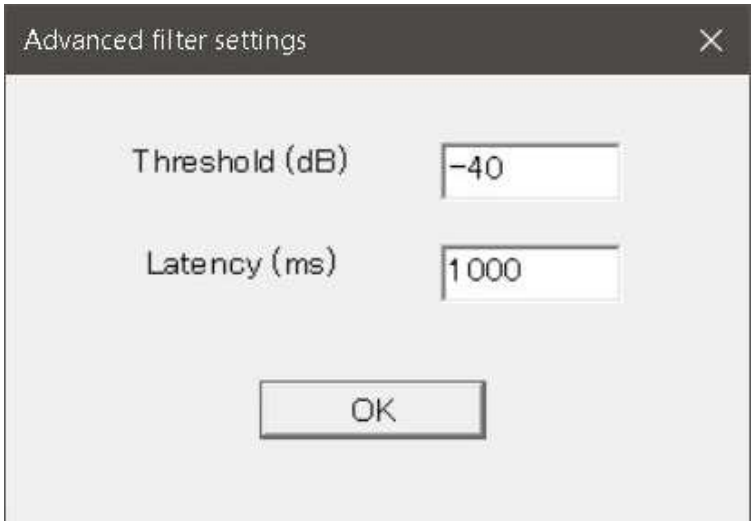

Fig. 2: Advanced filter settings window
In the Advanced filter settings window, the parameters 'Threshold' and 'Latency' can be set.

(③), the pitch-converted version of the WAV file can be reproduced.

The pitch shift amount can be manipulated by changing the value in the spin control (④). If the check box (⑤) is marked, you cannot change the value of the pitch shift amount during the reroduction. In that case, less memory is consumed by the program.

Reproduction can be stopped by pressing the 'EXECUTE / STOP button' again. To save the pitch-converted sound as a WAV file, choose 'Save' in the file menu.

3 Advanced filter settings

By 'Advanced' in the 'Edit menu' (⑥), the 'Advanced filter settings' window (Fig. 2) can be opened. In this window, the parameters 'Threshold' and 'Latency' can be set. When the level of the sound exceeds the level specified by 'Threshold' value for the first time after elapsing more than the interval specified by the 'Latency' value, the time-varying filter is forced to be rewound. You can, therefore, control the timing to rewind the filter by setting these parameters.

4 License of 'p_shifter.cpp'

MIT license