

GrooWii



User Manual

GrooWii

Realtime Audio Software
for making electronic music
with a Nintendo Wii Remote

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1. Introduction

GrooWii is an electronic musical instrument created with Cycling74s software Max/MSP. It is designed for electronic live music performances and combines a drum computer and a sampler with additional effects and filters. The control of the application was realized with a Nintendo Wii Remote. Thus, this game controller can be utilized as an electronic musical instrument.

The project name **GrooWii** is composed of two parts. The first syllable “Groo” comes from the fact that the software application is similar to a hardware groove box, both functional and in design. The second word “Wii”, reveals that the application can be controlled with a Nintendo Wii Remote controller.

Like its analogue counterpart, **GrooWii** combines sequencer, sampler and drum machine into a single software application. In addition, the individual sounds can be changed with filters and effects. Finally, the most important parameters for the sound output can be controlled using a Nintendo Wii Remote controller.

An important criterion for an interface is an intuitive handling, which means that it can be controlled without any previous knowledge. This is guaranteed for **GrooWii** because it is based upon a hardware groovebox. As a result, anyone who ever worked with such a hardware device in the field of electronic music should as well be able to control this application.

The Wii Remote control is also very intuitive, since it is a game controller, which means that it is designed to be operated easily even by children. Of course, the keys have to be assigned in a way that it is as comprehensible as possible.

1.1 Basics: Setup

In order to run the standalone application the Max 5 Runtime needs to be installed on the system. It can be downloaded for free from <http://cycling74.com/downloads/>.

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For developers and everyone else who wants to know what's behind the software, a full Max 5 installation is required. A fully-functional 30-day demo version is also available for free from the above link.

A Nintendo Wii-Remote controller needs to be connected to the system by bluetooth, in order to have the full functionality of the software. Setting up this connection in your bluetooth environment is quite straightforward. You just have got to be aware to press the buttons 1 and 2 at the same time while connecting.



1.2 Basics: User Interface

- a -- **filter section** _____ The sound of each track can be overlaid with a filter. In the filter section the corresponding settings for the currently selected track can be adjusted.
- b -- **pattern section** _____ Entered drum- and melody patterns can be stored in a database in order to recall them later from this section.
- c -- **wii-mote connect** _____ Different functions can be controlled by a Nintendo Wii Remote controller which has to be connected to the application.
- d -- **sequencer** _____ General sequencer functionality and play-back speed control.

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File Edit View Object Arrange Options Debug Extras Window Help

bd1.aif

hh1.aif

sd1.aif

sample1_1.wav

sample2_1.wav

Filtersection

filter mode cutoff gain resonance

display

				18
				12
				6
				-6
				-12
				-18
				-24

Patternsection

Drumpatterns Synthbank Effects

Chorus

1	2	3	4	1	2	3	4	
5	6	7	8	5	6	7	8	
A	B	C	D	A	B	C	D	

0 0 0 0

Sequencer

Play Pause Stop Rec Tempo 150 BPM TAP

connect

	BD	HH	SD	Sampler1	Sampler2	Vocals	Master
Effect on/off, extent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Filter on/off	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Programming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Keyboardpads

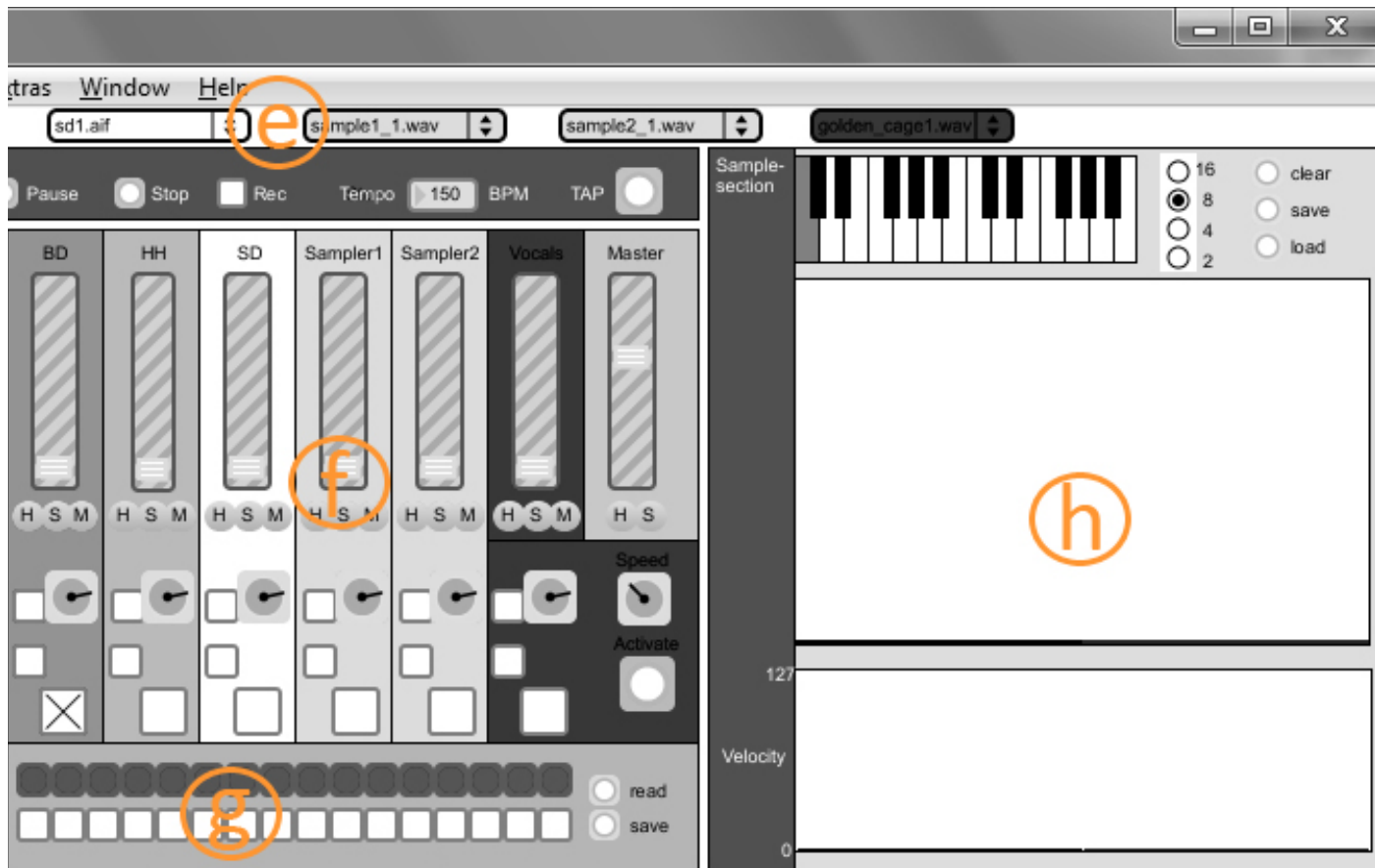
read save

-
- e -- **sample selection** _____ The sound of each track can be altered between eight different.wav or .aif samples.

 - f -- **main section** _____ The main section of the application consists of six tracks, including three drum tracks, two for controlling the midi-melodies, and one track to add vocals to the sound.

 - g -- **drum section** _____ For the drum tracks there is a special area in which the drumpatterns consisting of 16 beats can be set.

 - h -- **midi section** _____ For the midi tracks there is also a special area where notes can be set using a kind of midi-keyboard. Below the pitch and velocity of the entered notes is displayed and can be altered.



2. Application Control

First, the necessary defaults have to be taken within the software application. This includes in particular the input of drum beats and melodies and the setting of appropriate effects and filters. All this information can be stored in databases in order to access it during the actual performance, which enables to alter the individual parameters in a simple.

2.1 General Track Settings

The application basically consists of six tracks, including three drum tracks, which are responsible for the rhythm, two tracks for sampling, which add melodies and one track to play back vocals, in order to include them as well into the music.

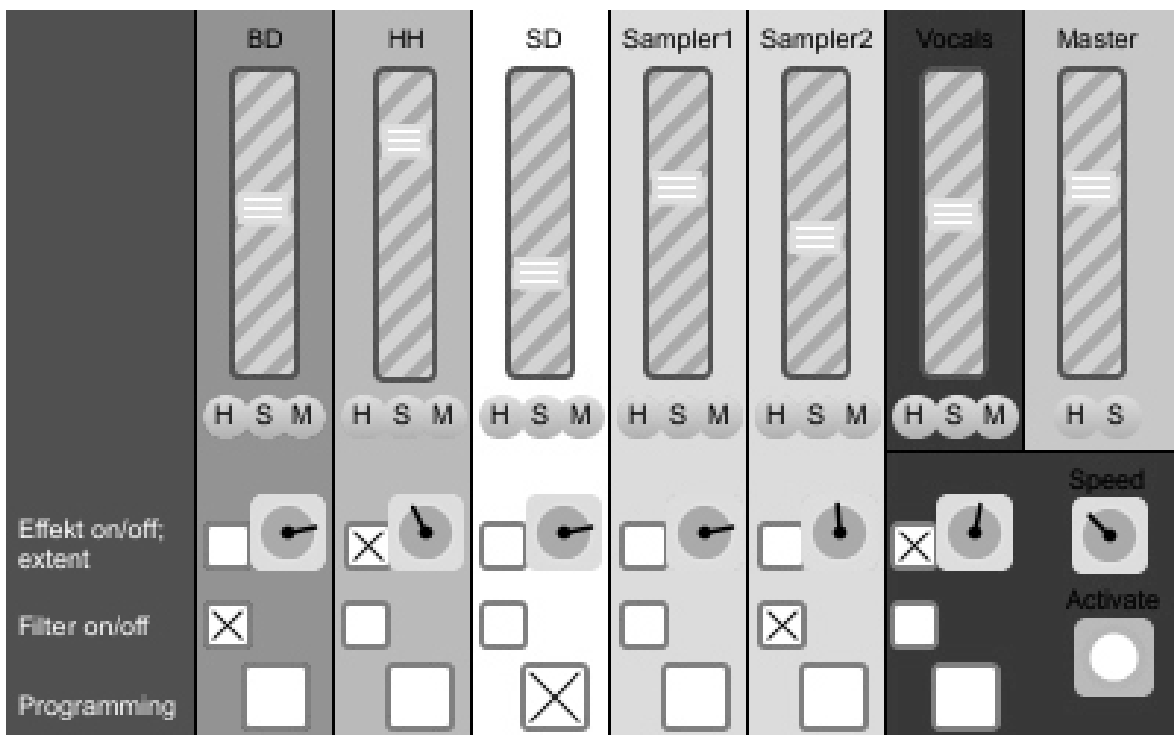
Each track has its own volume control. In addition, the overall volume of the music can be adjusted with a master fader.

Each of the tracks can also be switched individually to mute or solo, and it can be decided whether they sound should be played on the headphones or directly on the speakers.

Each track can be assigned with a unique sound, which must be stored in form of .wav or .aif files on the computer.

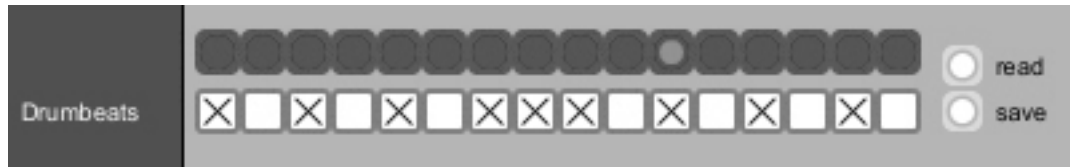
Effects and filters can also be customized individually. You can add or remove them and it's possible to adjust the degree how they effect the actual sound.

In order to enable a particular track to be edited, it must be specifically activated. This will also activate the individual processing area for the current track within the application .



2.2 Drumbeats

The application basically consists of six tracks, including three drum tracks, which are responsible for the rhythm, two tracks for sampling, which add melodies and one track to play back vocals, in order to include them as well into the music.



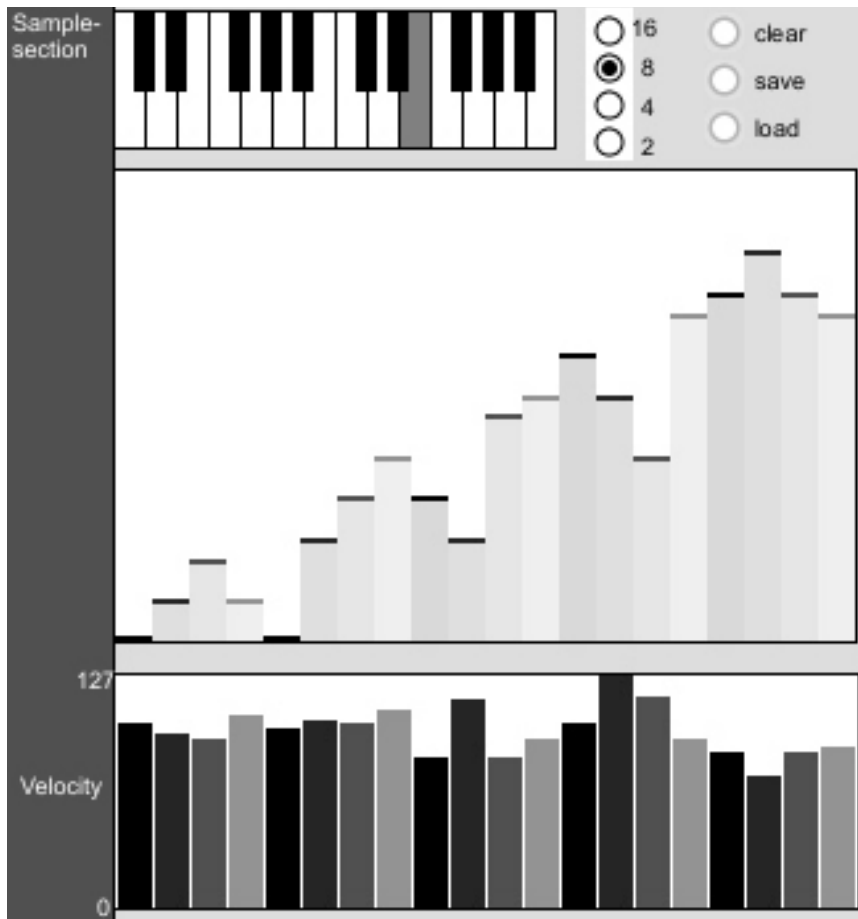
2.3 Samples

For the sampler tracks, there is again a special section that allows to play melodies using a MIDI-note arrangement. Scores can be set using a kind of MIDI keyboard.

The pitch and velocity of the total entered notes are displayed below. These parameters can subsequently be adjusted as desired.

This area again provides its own pattern database, where you can save the different melodies you enter in order to recall them at a later point of time.

The melodies are finally played back using a kind of sampler, which pitches the given .wav or .aif files according the entered MIDI-notes to achieve the desired sound.

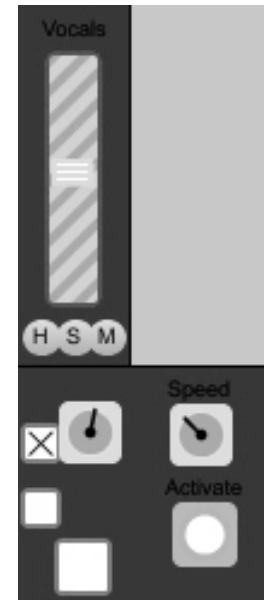


2.4 Vocals and Loops

With the last track recorded vocals can be integrated into the music.

In order to fit the vocals appropriately in the music, the speed can be adjusted arbitrarily without changing the pitch.

While this track basically is intended to play voice recordings, it could also be used to play complete loops.

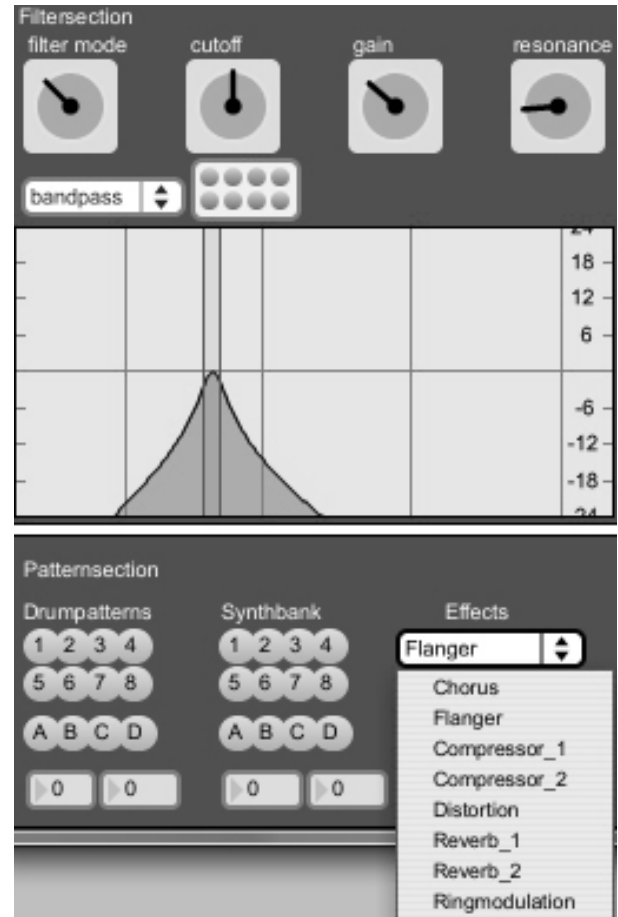


2.5 Filters and Effects

The sound of each track can be overlaid with a filter and different effects.

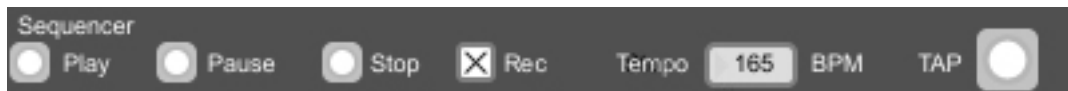
There is a filter area in which the filter settings for the currently selected track can be made.

In the effect section different effect presets, such as chorus, flanger, compressor, distortion, reverb or ring modulation may be selected.



2.6 Sequencer

Another important element is the sequencer section. Here is a button for play, which starts the playback of each track according to the number of BPM. Another button is pause, when the output can be interrupted. There is also a button for stop, which stops the current output as well. During a recording, however, it creates a new file and continues recording there. Then there is a switch which enables the recording feature. Next to it, there is an indication for the BPM count, where the playback speed can be adjusted. Finally, there is a button for TAP, which calculates the BPM rate from the average time between three successive clicks.



3. Nintendo Wii-Remote and Nunchuk Control

If you have finished the default settings in the software application, you can start with the actual music performance. The most important parameters for the sound output can now be controlled using a Nintendo Wii-Remote controller and a Nunchuk connected to it.

It's important that the bluetooth connection is established **before** you start the application, otherwise it can't be dedected by Max 5.

Within the software you have to click on the connect button below the Wii-mote image. A short vibration of the Wii-Remote controller signalizes that everything works fine.



3.1 Wii-mote buttons



By moving the turnstile to the left and right, it will be changed to another track. By upward and downward movements, the volume of the current track can be set.



By pressing button A, the Nunchuk controller will be activated for selecting a sample for the track.



If you turn the Wii-mote to the right and then press three times the B button, the playback speed will adjusted using TAP functionality.



Pressing B in normal position results in activation of the Nunchuk for selecting a pattern from the corresponding database. As long as B is held down, the pattern letter can be selected from the database using + and - button.



By pressing button 1 the Nunchuk will be activated for the selection of a filter for the current track.



Button 2 is responsible for the activation of the effect choice.



If you turn the Wii-mote to the right and then press the minus button, the output of the track will be directed to the headphones. With plus, however, the sound of the current track will be played directly on the loudspeakers.



In normal position, being on the vocal track, the speed of the voice output can be increased or decreased by +/-.



If you have just chosen a filter that has not yet been confirmed, as you still hold the Z button, the plus and minus key is used to set the cutoff frequency.



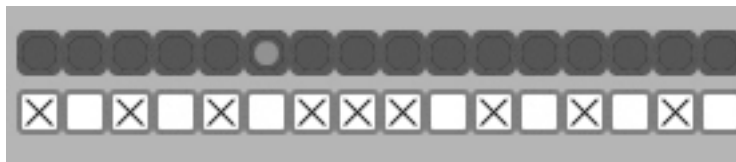
If the Wii-Remote controller is turned to the right, you can use the Home button in order to mute the output of the current track.



In normal position the Home button is used to activate the output of the vocal track.

3.2 Wii-mote motion sensor

If one of the drum tracks is activated, the built-in motion sensor is used to set the drum beats there by a simple quick movement from top to bottom.



3.3 Nunchuk buttons



Depending on whether a filter or an effect has been just selected, it can be disabled again for the current track using the C button.



The Z button is used to confirm the current selection of the Nunchuck and deactivate the joystick.

3.4 Nunchuk joystick

The joystick can be moved to eight key points, thus, depending on what the Nunchuck controller was enabled for, either a sample from eight available sounds, a pattern from a database, a filter curve or an effect preset can be chosen for the current track.

