

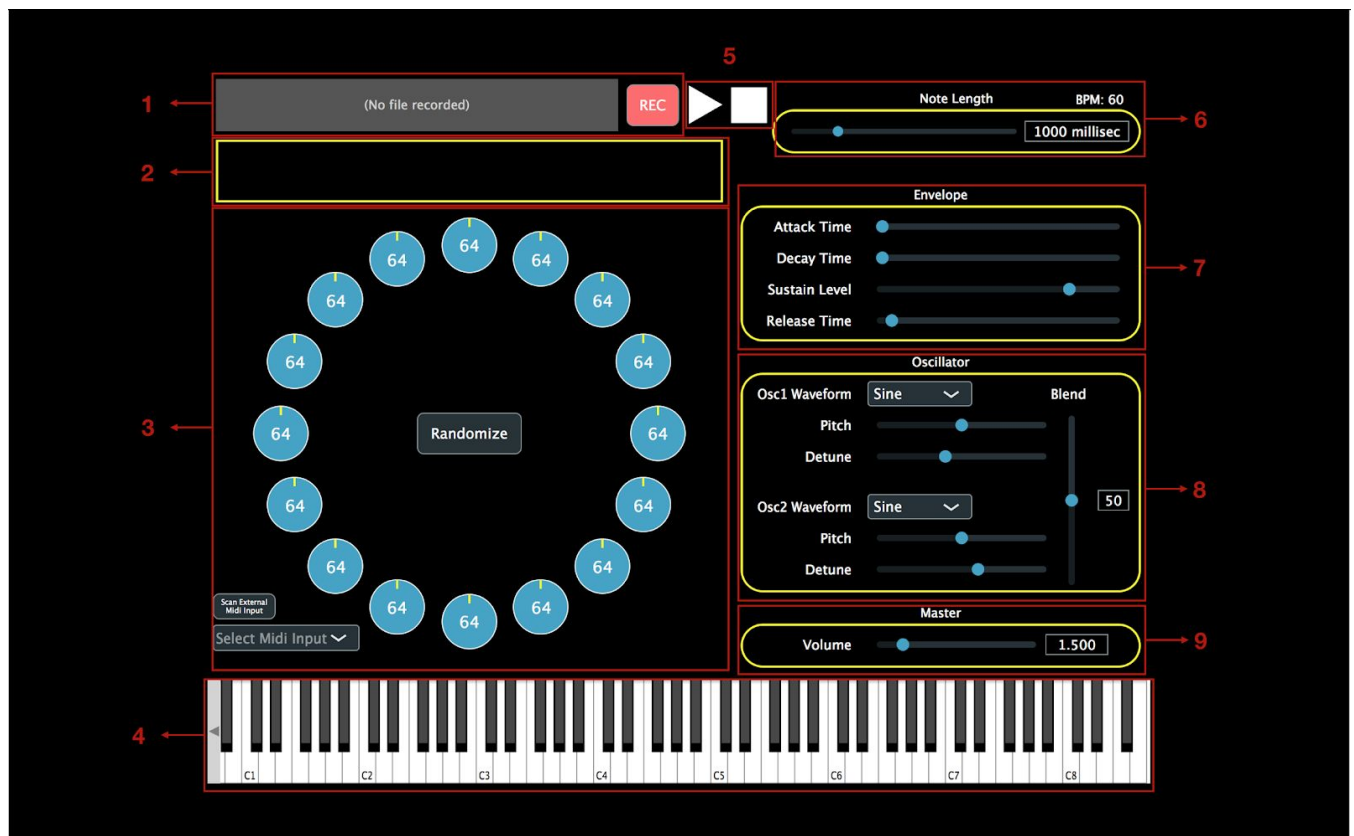
# Difference As Repetition: A Polyphonic Midi Synth & Sequencer

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## OVERVIEW

The product is a standalone audio application build with JUCE framework. It works as a polyphonic Midi synthesizer and sequencer. The name “Difference As Repetition” is inspired by Gille Deleuze, to signify the idea of repetition as a constant differentiation process. The purpose of this application is to allow artists to explore and evolve sounds through a live interaction of a Midi synth and a step sequencer.

## The Interface



## 1. The Recording Module

Click red toggle-on-off button “REC” to start recording all live audio outputs from this software. The button will turn to display “Stop” indicating the recording session is on. When recording, the gray box will draw the wave shape for the current recording. To finish the current recording, click the on the “Stop” button. A file named “Difference As Repetition.wav ” will be generated under the same parent directory this application is in. It can record multiple sessions, as a number in parenthesis (i.e (1), (2)...) will indicate the sequence of those “.wav” files.

## 2. Live Audio Shape Display

This box is a scrolling region that draws live waveshape of its audio output.

## 3. The Sequencer Module

This module is a 16-step sequencer, with each node represents a note. The number on the node corresponds to Midi number mapping on the keyboard. Specifically, 1 to 127 corresponds to C2 to G8. All nodes are initialized at 64 (E3). The sequencer runs clockwise, and a change in color indicates currently played node.

The “Randomize” button generates random values for all 16 nodes.

Click “Scan External Midi Input” button to scan all plugged-in external Midi input devices. Then use the menu below to select the device to use as the Midi input source.

## 4. Software Midi Keyboard

This is an on-screen software Midi keyboard component allows mouse click for playing notes. It is a polyphonic synth keyboard that allows up to 6-note chord. It has a default computer keyboard mapping enabled starting from the 4th octave, i.e computer keyboard “A” to “;,” maps to piano keyboard C4 to E5.

## 5. Play & Stop Buttons

The play and stop buttons are used to start/stop the step sequencer.

## 6. Note Length (BPM)

This slider adjusts the length of each node on the sequencer (in milliseconds). The BGM label on the top right corner is a BGM conversion given each node as a quarter note.

## 7. Envelope

The four sliders provide adjustable ADSR envelope to the synth sound.

## 8. Oscillator

The synthesizer consists of two oscillators. You can choose four different waveforms for each of the oscillator, and adjust the blend level with “blend” slider. It also provides the functionality to adjust pitch shift and detune for each oscillator in real time.

## 9. Master Volume

This slider adjusts the master volume of audio output, on a virtual scale of 0.0 to 10.0.