

Controls

On the iPad, there are three pages of controls available, so these pages are numbered 1 through 3. There is a performance menu labeled 'P' that is some controls specifically selected to be quickly available. The button with the carat marker opens and closes the menu, and is available at all times.

This is the combination of the octave switch and the automated 'Octave Rounding' feature that automates octave switching. This is a key concept in soloing very fast on this instrument, and the basic idea is to change octaves to keep the note as close as possible to the previous note selected. If you are having trouble understanding the exercises at the bottom, or just playing music that is hard with octave rounding enabled then you can set octave to 'manual' for now.

This is the whammy bar, which goes up and down an octave. It is here to give more reach than is available with fingertip bending alone. The relative switch determines whether movements are relative to the first touch down on the whammy bar, or whether the position is absolute. Try it with it on and off, and the effect should need no more explanation.

When a note is played, lock pitch minimizes bending

so that discrete notes are played when a finger slides across the screen. The round attack says whether to play the exact fretted pitch when the finger goes down, or to start off with the slightly out of tune pitch on attack and drift to the correct note (useful for getting a realistic fretless sound).

These pick scales out. When the pick drone button is chosen, the next note touched on the surface ends up being the root note of the current scale. The pick scale button lets you pick a scale by name in a popup menu (mostly diatonic scales and a harmonic minor scale).

Intonation and Microtonality are controlled here. This determines the number of frets per octave. 12 and 24 are related as 'chromatic' and 'quartertone' scales. 53 and 665 are special scales that match up well with Pythagorean tunings. This is advanced stuff that you should stay away from until you know that you need it.

Polyphony rules are controlled here. There is a simple monotonic mode which is like solo mode on piano. There is a full polyphony mode which is like normal piano mode. The string polyphony mode is like solo mode per row, and allows for string-instrument like behavior, with stacked hammerons and hammeroffs. The legato button determines whether a note being hammered on/off will restart its attack envelope.

Tuning and transpose are controlled here. They do not affect MIDI. Snap speed determines how quickly a note is going to drift to its fretted value. The fretting are related to the intonation setting, which drift to the desired pitches rather than restricting pitches to these values and bending them later.

The screen width and the number of Rows (like guitar strings) are controlled here so that the user can zoom in on part of the fretboard, especially when doing microtonal playing and more accurate control is required.

The volume is controlled here (and there is some compression in the volume). Octave harmonics and fifth harmonics control overtones created by playing the sample at octave and fifth rates over the main sound. These allow for vertical expression in the sound, as the harmonics vary based on y position.

The distortion is most useful on very simple waveforms (especially sin/saw/square), but can be useful in getting distorted chording beyond what can come through in a sample. The FM controls the amount of frequency modulation in the sound, and Touch FM controls how tightly this ties to the vertical in expression. The FM controls are almost exclusively

useful for the non-sampled sounds.

Mono out is useful for reducing the output to a single channel of mono sound to be plugged into a guitar amplifier (and a simpler sound is recommended if running through guitar effects.) Relative Y determines whether the vertical for each finger starts off centered when the finger goes down, and it's only audible with some expression from either FM or harmonics.

The wave shape is controlled here. Custom is for samples that come out of SampleWiz. SampleWiz can export directly into Geo so that SampleWiz can be used as a patch generating program. But if you export from SampleWiz, you need to make sure that the sample is properly tuned, loop is set up, and sample is correctly cropped before export.

Attack and Release are related to the stop and start rampup time for when a waveform is turned on and off. Body is a pseudo-chorusing effect, that is a series of short echoes (without detunings).

Lowpass filter has both frequency and resonance parameters, so they are closely related. Lowpass filters change the frequency mix of the sound, taking out high frequencies. The pan width is the amount of stereo created by the fingers, determining how far to

the left and right sounds are when playing.

Echo/Delay are controlled here. Tap is changed by actually tapping out the desired rhythm on the screen. The delay width controls the amount of stereo created by the delay. The delay rate can be controlled directly, or by the tapping out of the beats per minute.

The delay volume controls how loud overall echoes are. The feedback determines how much echo goes back into the echoes in the next round of echoes. The reverb is a series of dense random echoes that give a hall-like sound.

These control whether MIDI is even enabled, whether it sends out over Wifi, whether bends are included in the notes (you may need to turn them off for some synths, and a panic button just in case you need to quickly stop all notes).

Midi volume controls the velocity for MIDI notes going down. The base channel is the first channel of MIDI that we send notes to. The span controls how we send notes across to multiple channels. The MIDI channel span is a feature peculiar to synths that need to do independent note bending. If a multi-timbral synth is set up to have the same voice across a span of channels, then setting to span these channels will give

independent note bending, something which is generally not available in MIDI. MIDI typically assumes that all controllers are a set of discrete pressure-sensitive buttons and a pitch wheel, which is not the case for fretless controllers in which each pitch can be independently manipulated.

Note the MIDI bend range. MIDI chose to handle different pitch wheel sizes by allowing the pitch wheel bend range to vary from synth to synth. If you change this value from 2 to something else, you must set this value the same in the synth that gets the messages. If you don't do this, then it will sound like bends are not happening. Because the MIDI and internal notes must be the same, we must limit our notes to somewhere in MIDI range. Furthermore, some patches are either silent or just produce aliasing noise when out of their natural range. So the range can be set here.

These are the presets. They save the entire state of the user interface, and chosen options. The triangle marking a patch determines which patch is active.

Exercises

This instrument rewards practice. Scales and arpeggios are the basic things to know in order to

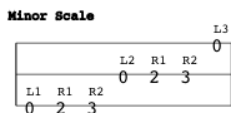
make steady progress, much like guitar playing. This tablature is using numbers relative to any point on the board of your choosing. So string zero, fret zero are just some place that denote a bottom-right corner. You should learn all of these patterns forwards and backwards.

The notation in the tablature includes the fingering. The fingering is included because it matters greatly which fingers are chosen, so that in repeating rhythms, each finger going down is free before the next note needs to be played. One of the things that can slow you down more than anything is to have to move one finger around to many locations to get through a passage. Ideally, you are cycling through fingers evenly on each hand. So each finger is labelled left and right, starting at zero for thumbs. This notation is not only relative to where you want, but can include negative numbers because it is relative.

Note that if you have been playing a guitar for a long time (as a right-handed player), that the fingering does indeed look like a right-handed layout. But your left hand is in an upside down posture if you play with this laid down in front of you. So your right hand fingers will actually be reversed, though your fretboard vision will show you what you are used to. You might have to start off playing Geo upside down if the fingering being

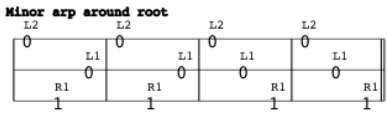
upside down bothers you more than if you turn Geo upside down and the visual pattern is upside down. It's a consequence of playing your guitar as if it's in your lap rather than with a hand wrapping around a neck.

Note: I (Rob Fielding) am a left-handed guitarist myself, and I found using this right-handed fretboard devilishly hard for the first few weeks because my fretboard vision was left-handed. So, in this respect right-handed guitarists will have an easier time at it than I did. Most guitarists seem to be fine with this layout, and most iOS guitar-like apps choose this orientation. If you find that you have to play with it rotated, whether it be 180 degrees, or -90 degrees (counter-clockwise with lowest chromatic towards you and higher away from you), then send us mail. The point of this instrument was to merge the best of keyboard and guitar skills into one ambidextrous skill.

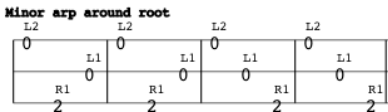


Practice this scale fingering for ascending diatonic scales. Repeat the pattern as quickly and as smoothly as you can, taking care to get the third finger of left hand transition to first finger of left hand transition down smooth. This is essentially a 7 beat rhythm (because diatonic scales have 7 notes), which makes it

tricky to do evenly.

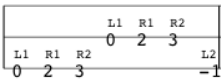


Minor arpeggios up and down are key to playing very fast. Since there are no intervals larger than a fourth in octave rounding, this is how you reach fifths and do octave switching.

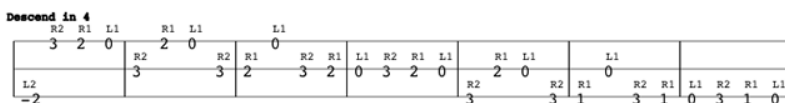


This is essentially the same arpeggio as the other one. There are 3 different fingerings for all of these arpeggios, but these are the easiest ones to start with.

Harmonic Minor Scale



This is the harmonic minor scale, which is a minor scale with a sharp seventh. Note the -1 index in the tablature, which is just saying that it's to the left of the center that you chose. Note that this suggests an alternate fingering for minor scales that may be more amenable to faster playing (to drop down to -2 by finger L3 for the seventh).



This is a common guitar and piano run to practice. It is

descending 4 notes at a time.