AUDIO SYNTHESIS

Intro to sound programming

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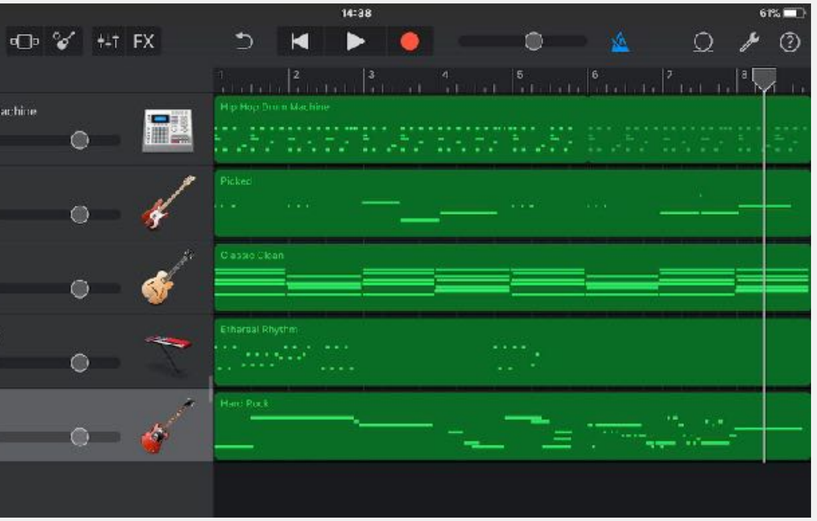
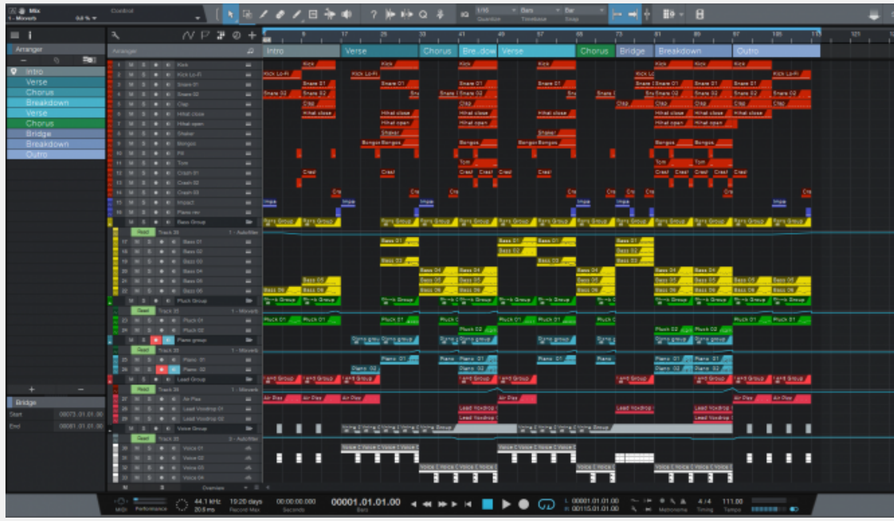
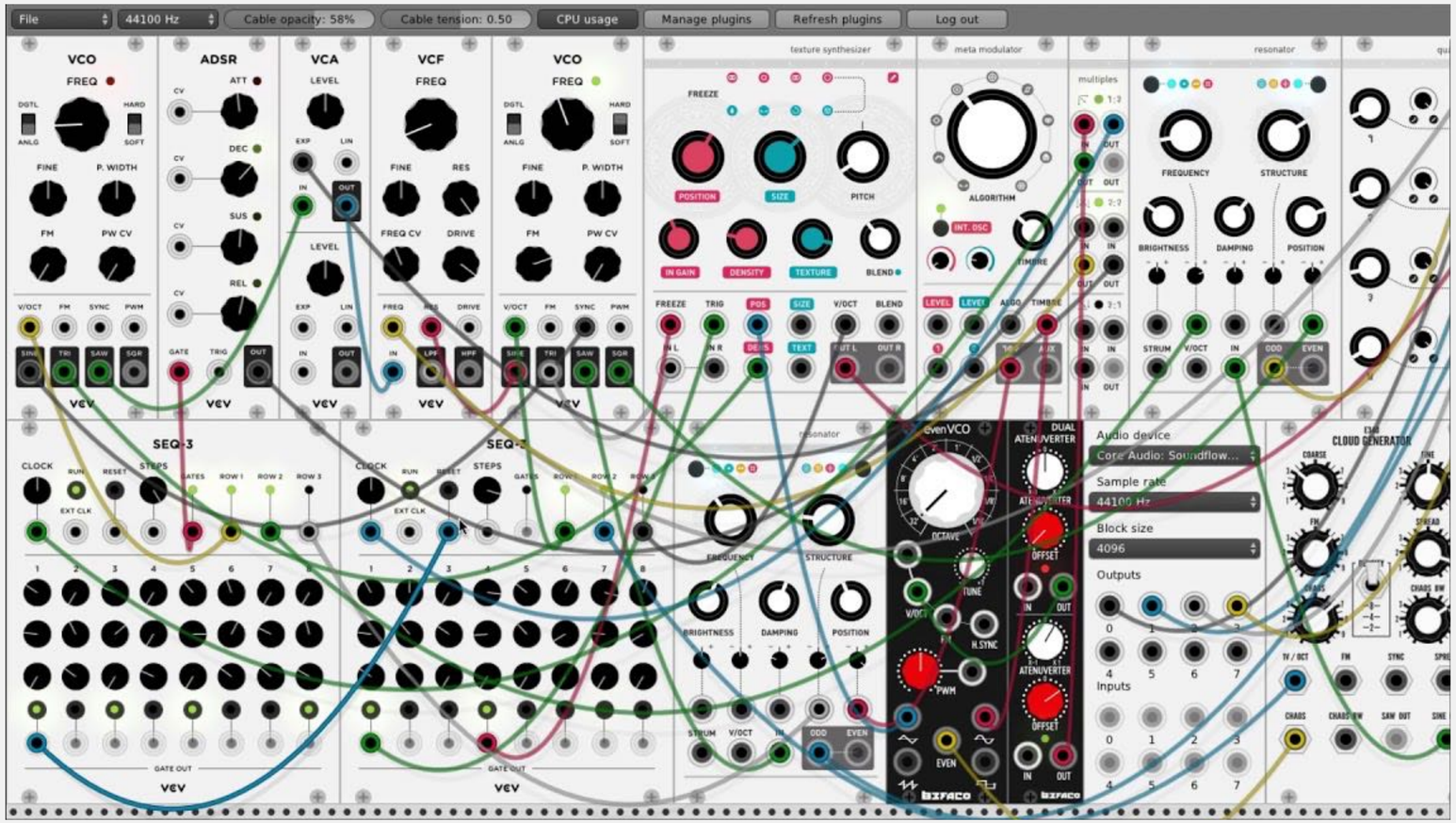
August 2019

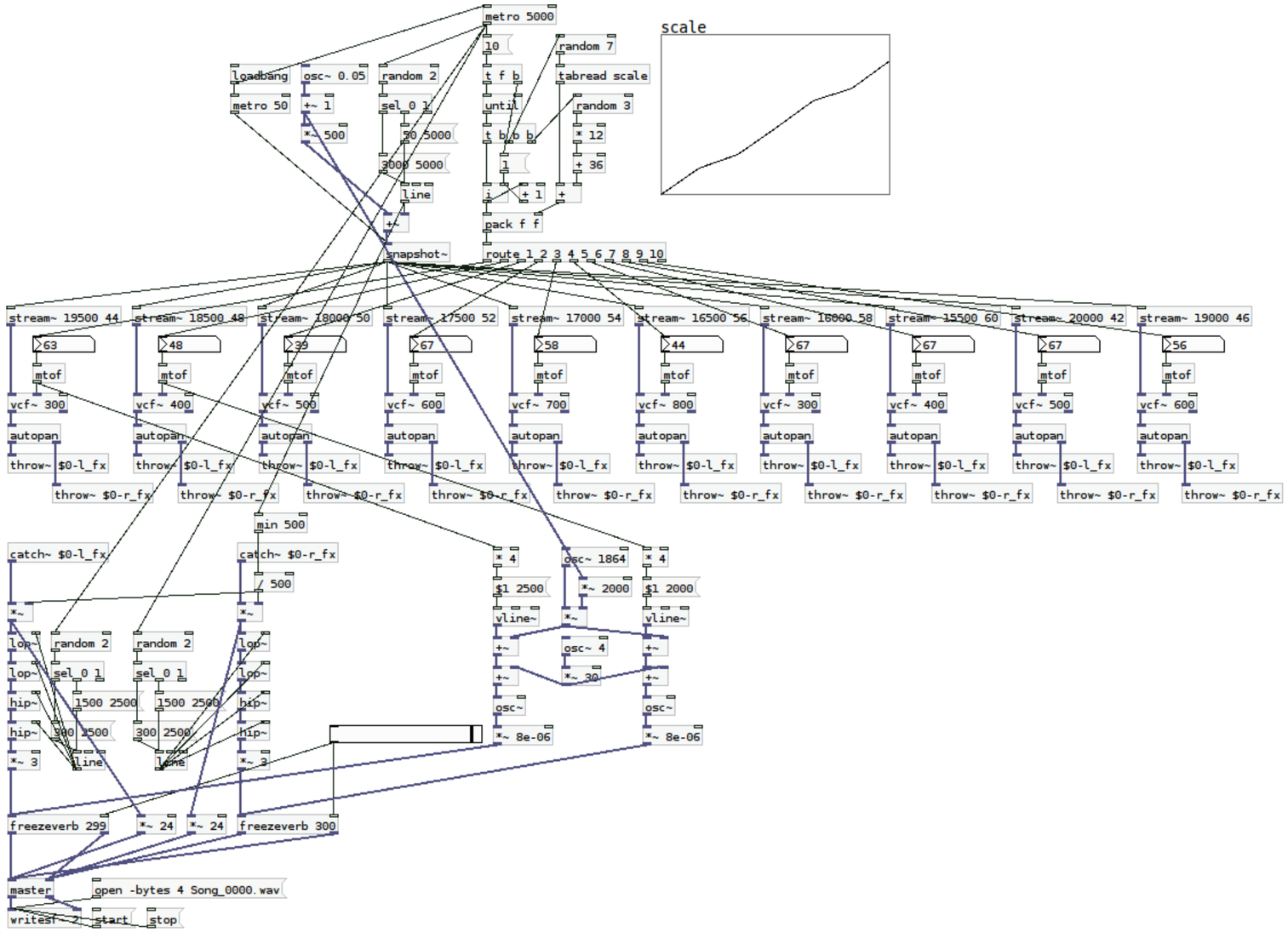

14:38
FX
Hip Hop Drum Machine
Picked
Classic Clean
Ethereal Rhythm
Hard Rock


Intro
Verse
Chorus
Breakdown
Verse
Chorus
Bridge
Breakdown
Outro

audiotool.com



https://puredata.info/



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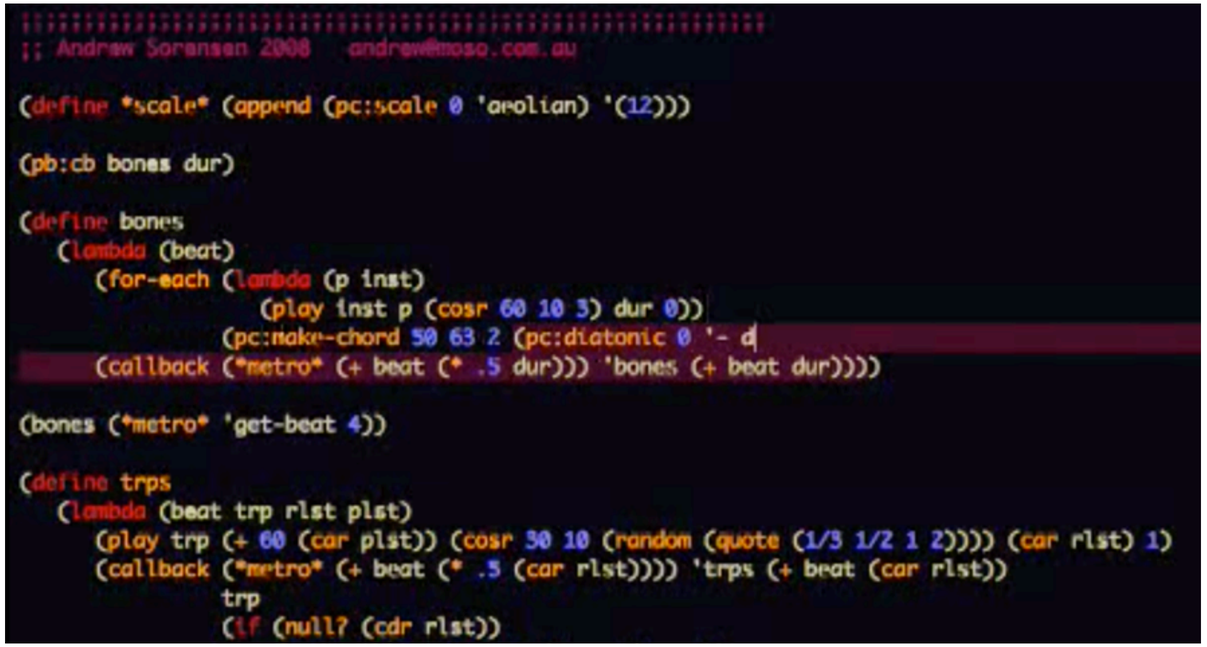


```
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
;; Andrew Sorensen 2008   andrew@moso.com.au

(define *scale* (append (pc:scale 0 'aeolian) '(12)))

(pb:cb bones dur)

(define bones
  (lambda (beat)
    (for-each (lambda (p inst)
                (play inst p (cosr 60 10 3) dur 0))
              (pc:make-chord 50 63 2 (pc:diatonic 0 '- d
    (callback (*metro* (+ beat (* .5 dur))) 'bones (+ beat dur))))

(bones (*metro* 'get-beat 4))

(define trps
  (lambda (beat trp rlst plst)
    (play trp (+ 60 (car plst)) (cosr 30 10 (random (quote (1/3 1/2 1 2)))) (car rlst) 1)
    (callback (*metro* (+ beat (* .5 (car rlst)))) 'trps (+ beat (car rlst))
              trp
              (if (null? (cdr rlst))
```

https://vimeo.com/2503188

Digital Signal Processing (DSP)

Frequency Modulation (fm synthesis)

Frequency/Amplitude

ADSR envelope

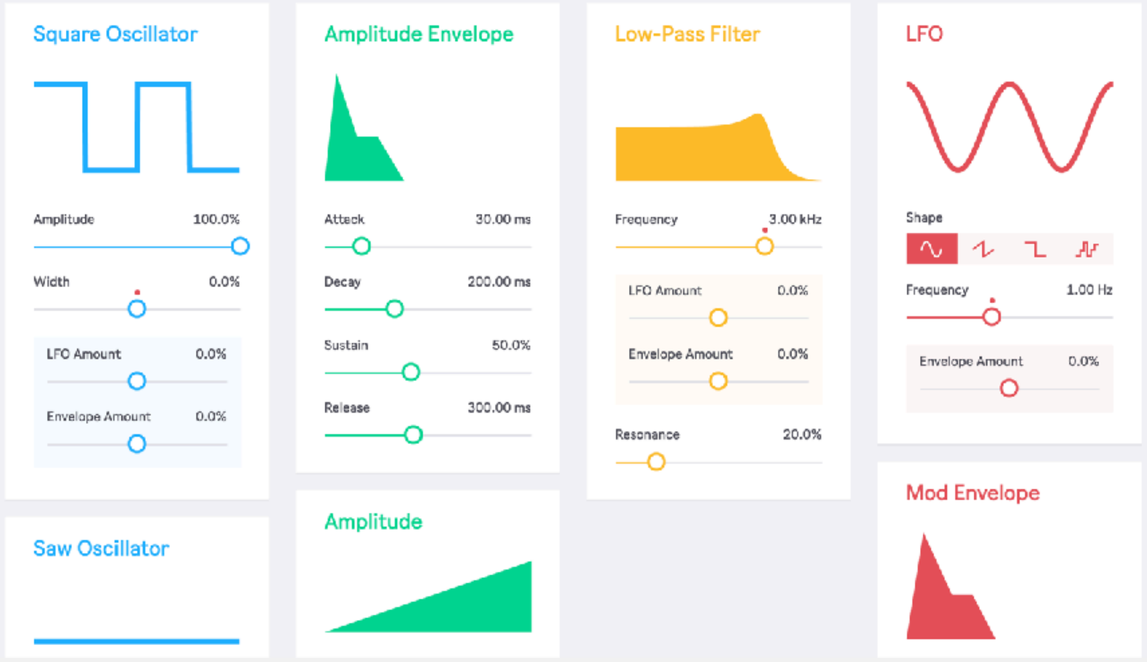
Sample rate

44100 HZ

White noise

Algorithmic composition

Additive/subtractive synthesis



https://learningsynths.ableton.com/playground

https://learningmusic.ableton.com/

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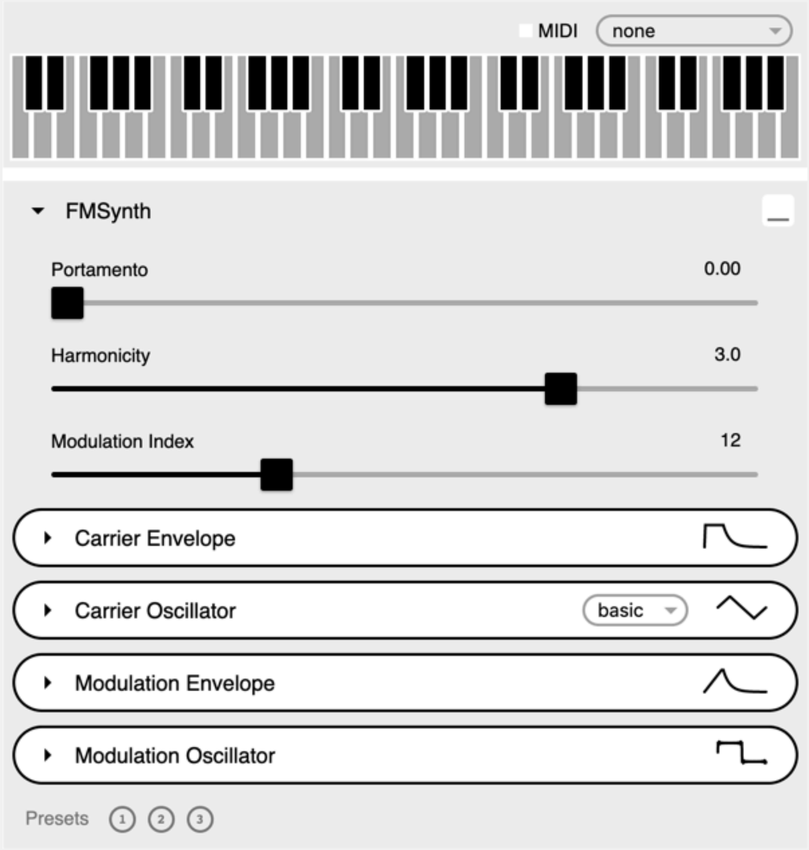
p5.sound library

p5.sound extends p5 with Web Audio functionality including audio input, playback, analysis and synthesis.

`p5.SoundFile`: Load and play sound files.
`p5.Amplitude`: Get the current volume of a sound.
`p5.AudioIn`: Get sound from an input source, typically a computer microphone.
`p5.FFT`: Analyze the frequency of sound. Returns results from the frequency spectrum or time domain (waveform).
`p5.Oscillator`: Generate Sine, Triangle, Square and Sawtooth waveforms. Base class of `p5.Noise` and `p5.Pulse`.
`p5.Envelope`: An Envelope is a series of fades over time. Often used to control an object's output gain level as an "ADSR Envelope" (Attack, Decay, Sustain, Release). Can also modulate other parameters.
`p5.Delay`: A delay effect with parameters for feedback, delayTime, and lowpass filter.
`p5.Filter`: Filter the frequency range of a sound.
`p5.Reverb`: Add reverb to a sound by specifying duration and decay.
`p5.Convolver`: Extends `p5.Reverb` to simulate the sound of real physical spaces through convolution.
`p5.SoundRecorder`: Record sound for playback / save the .wav file.
`p5.Phrase`, `p5.Part` and `p5.Score`: Compose musical sequences.

p5.sound is on GitHub. Download the latest version here.

https://p5js.org/reference/#/libraries/p5.sound



https://tonejs.github.io/