Emerging Music Nexuses: Technology, Video Games, and Coding

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Avondale Elementary School District

What's the plan?

- Three emerging music nexuses:
  - Music performance and Technology
  - Music and Video Games
  - Music && Coding
- Let's Talk

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How to reach the resources

- www.JaredOLeary.com
  - Presentations
  - Emerging Music Nexuses

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Music performance and technology

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Digital and hybrid musicianship

- youtube.com/OCPDMusic
  - Playlists
    - Digital and Hybrid Musicianship

https://goo.gl/k5edaL

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Augmenting an elementary ensemble

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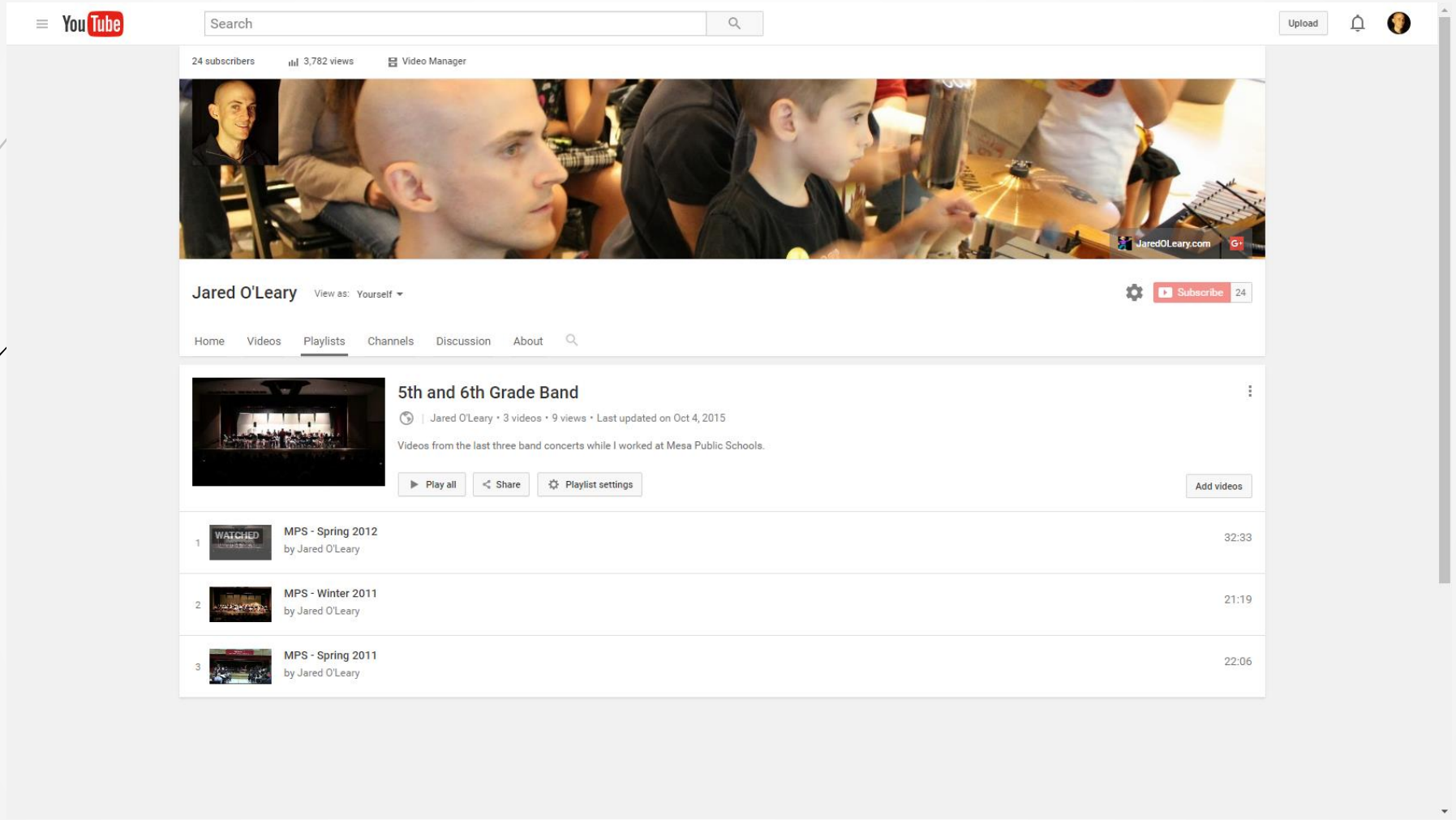
Augmenting an elementary ensemble



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Augmenting a community ensemble

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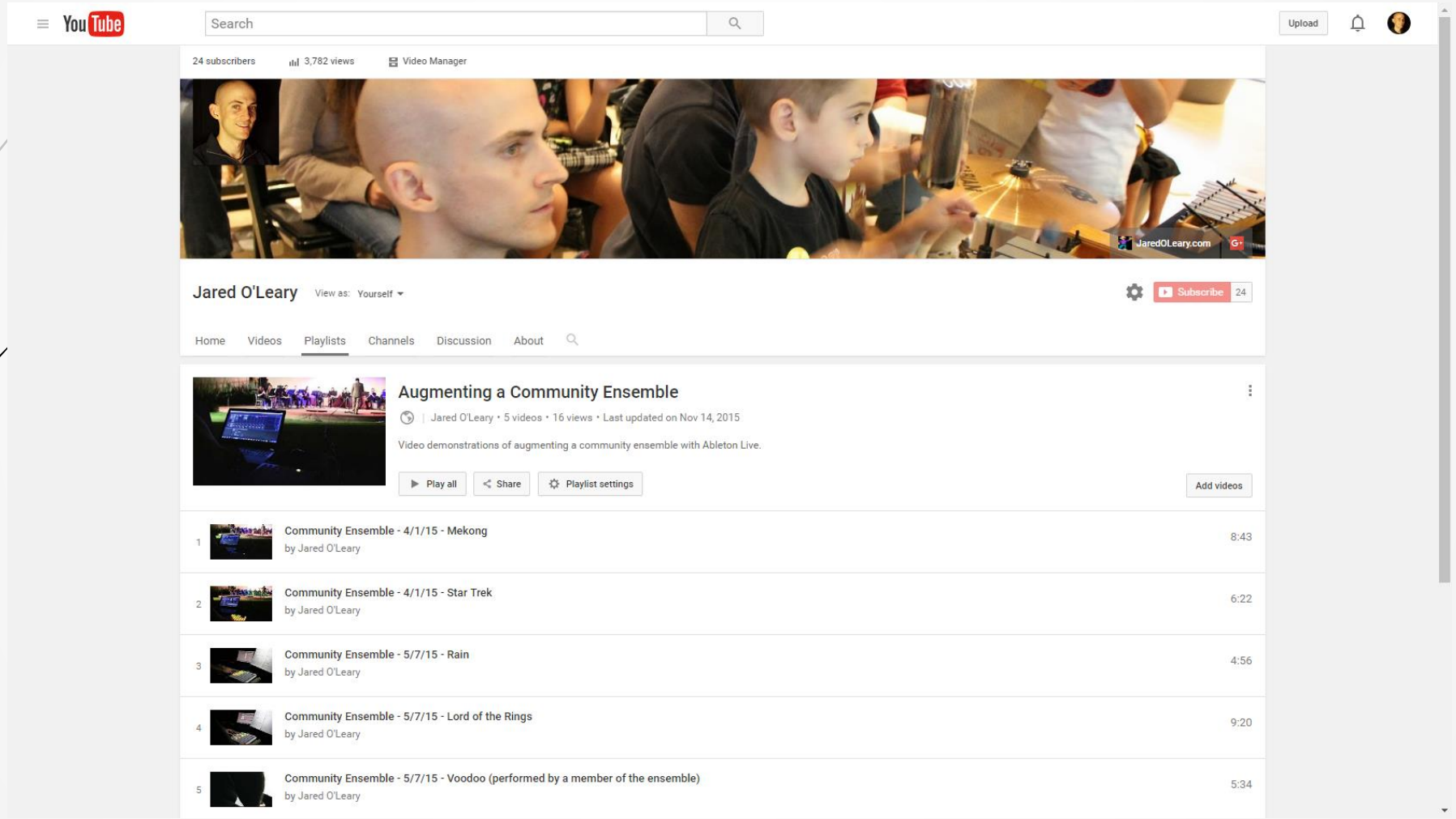
Augmenting a community ensemble



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Some other presentations on this topic

- 21st century elementary ensemble director
- From large ensembles to video games: Technology in music education
- Multimedia ensemble: Performing live music with live video games
- Using technology to augment musicianship
- Using technology to augment teaching

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Music and video games

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Video game music and interactive audio

- Video Game Music

https://goo.gl/FSNAhB

- Interactive Audio

https://goo.gl/O5SOox

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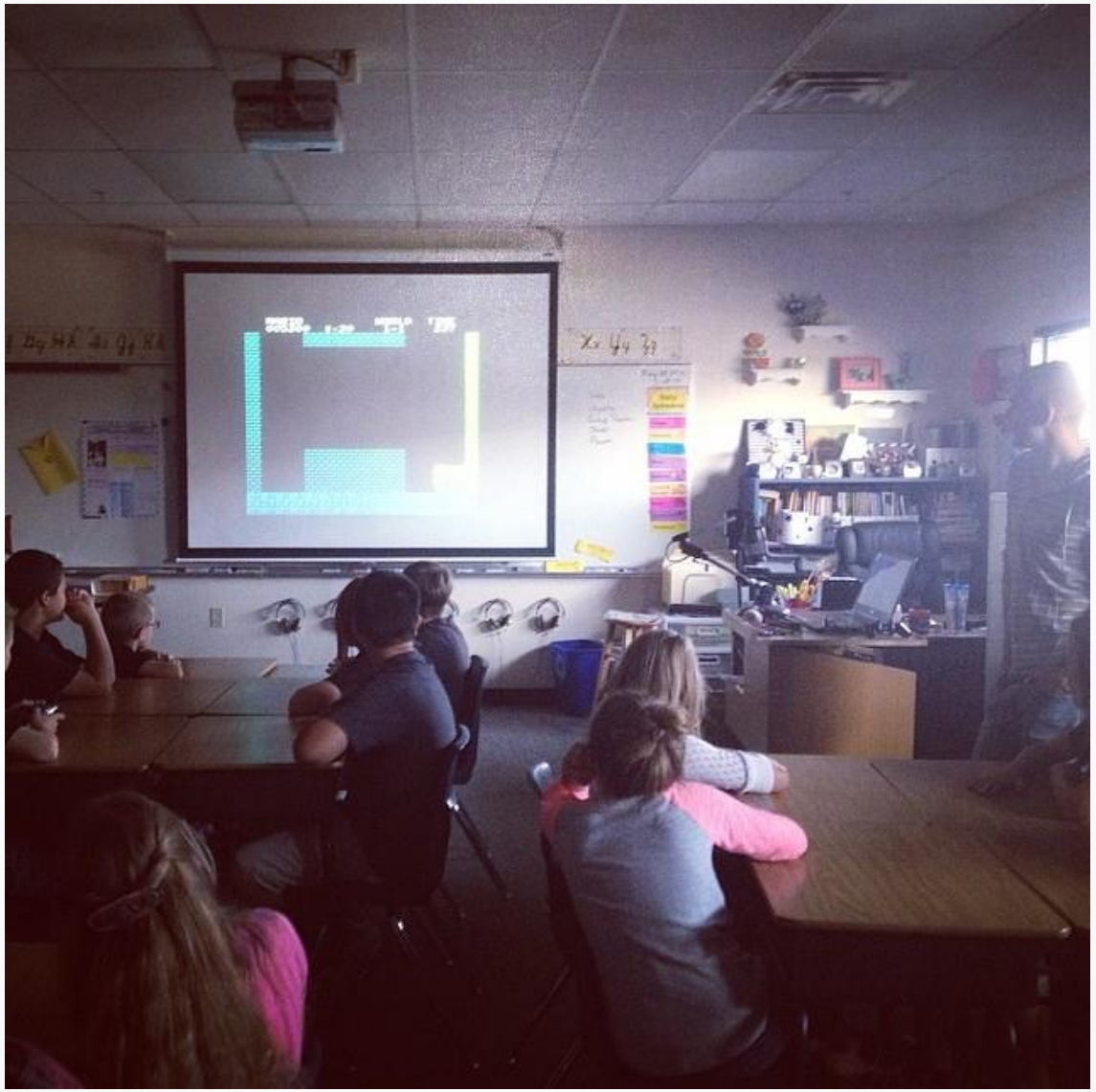

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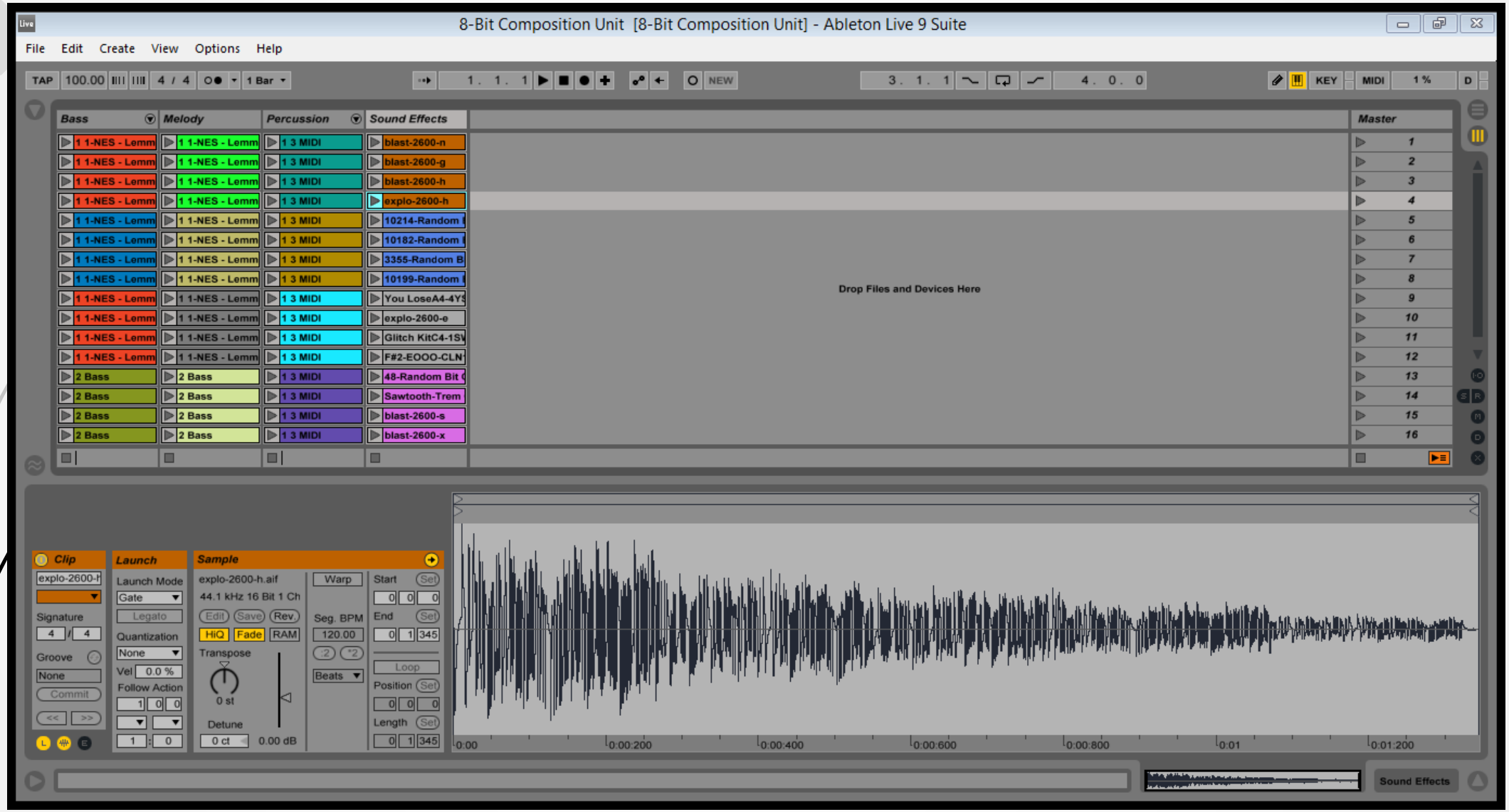

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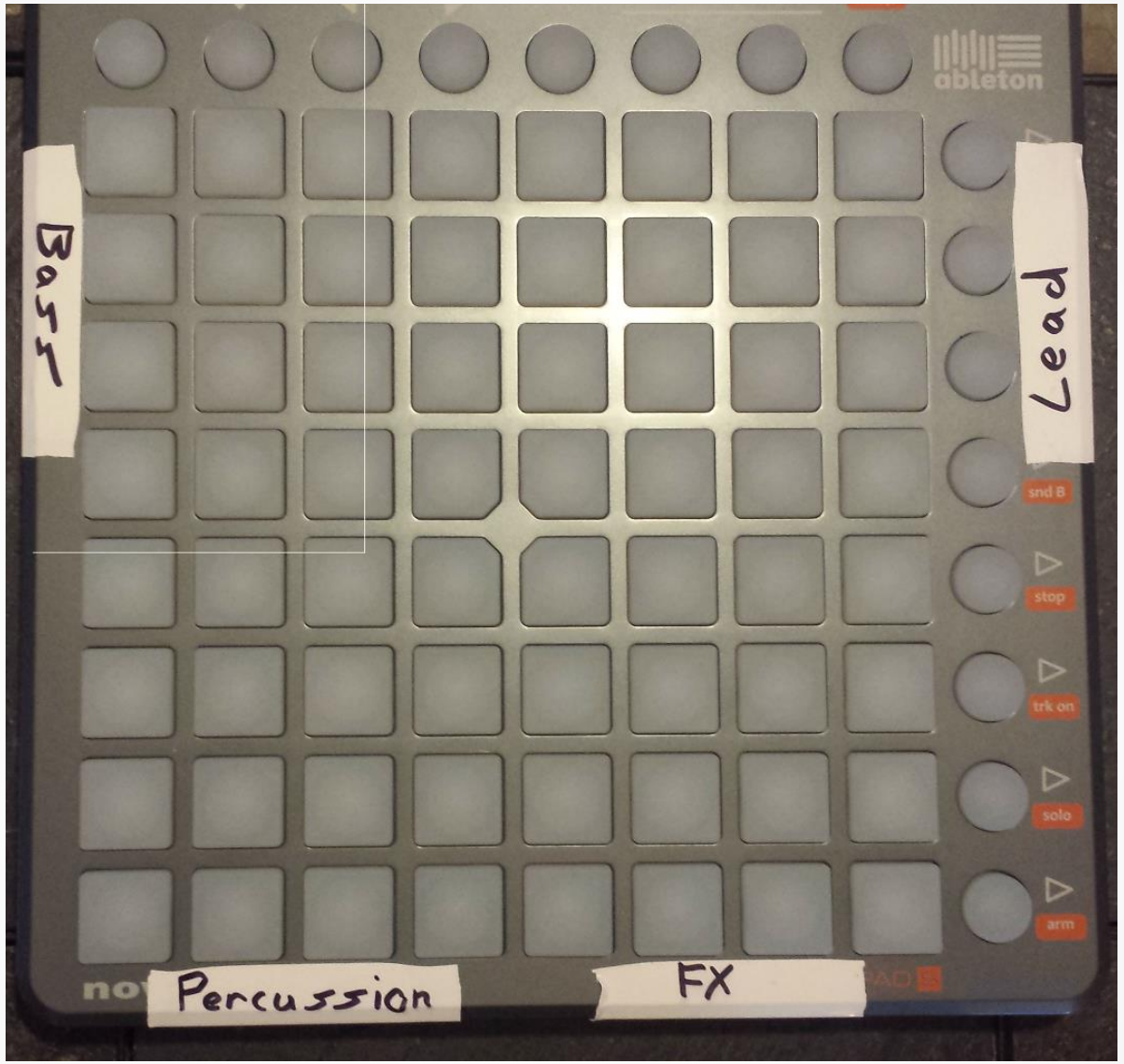

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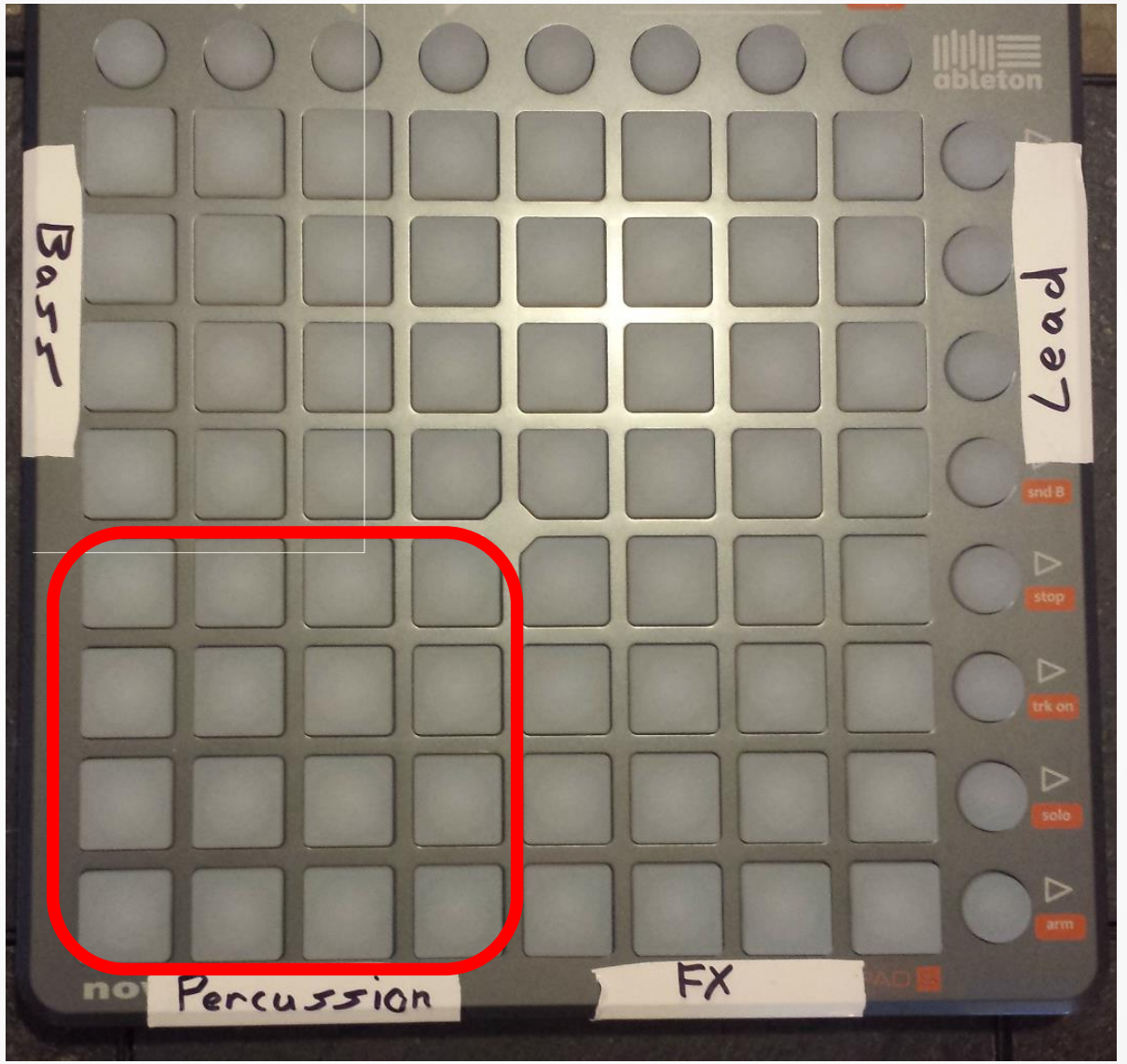
Percussion



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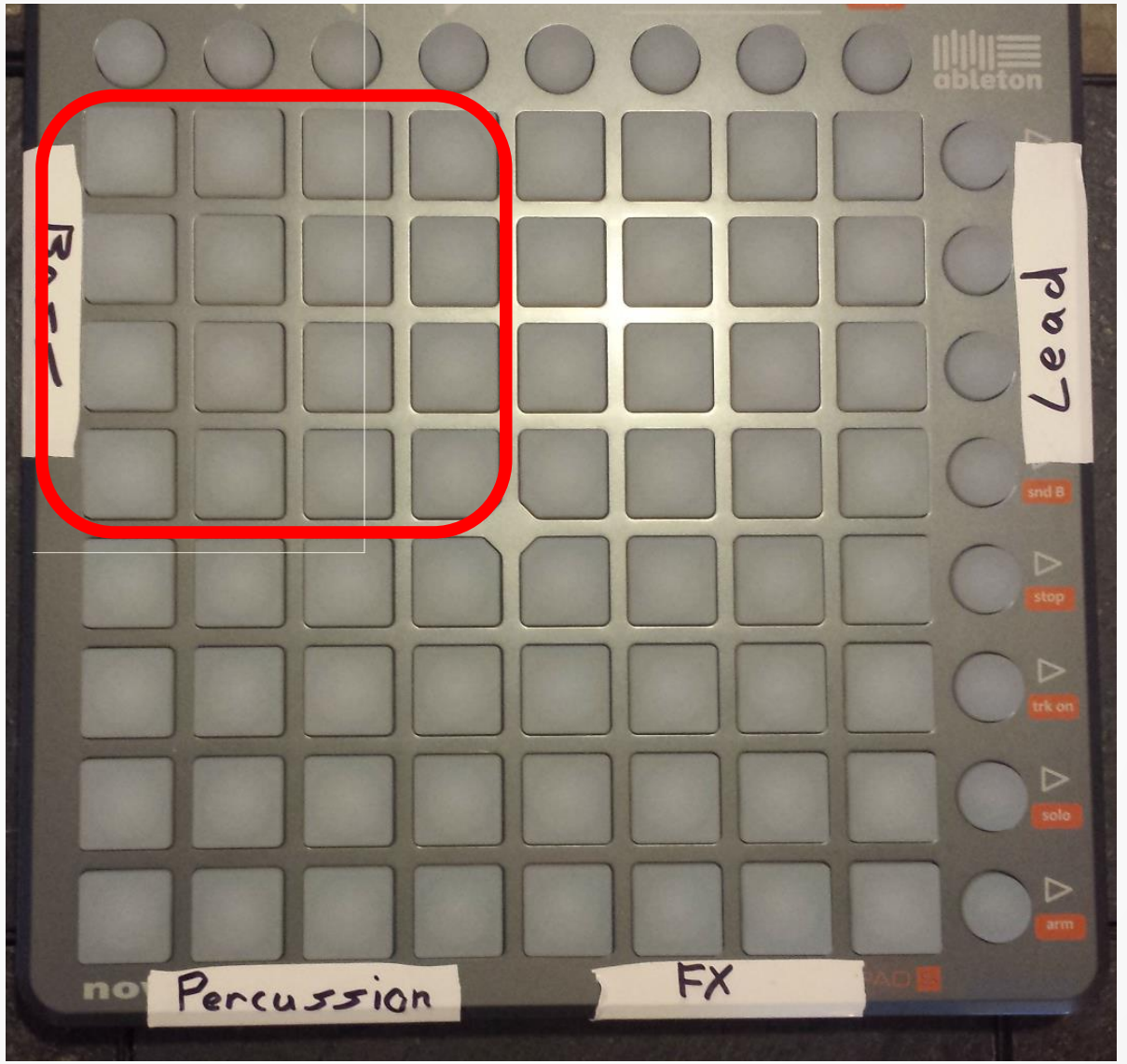
Bass



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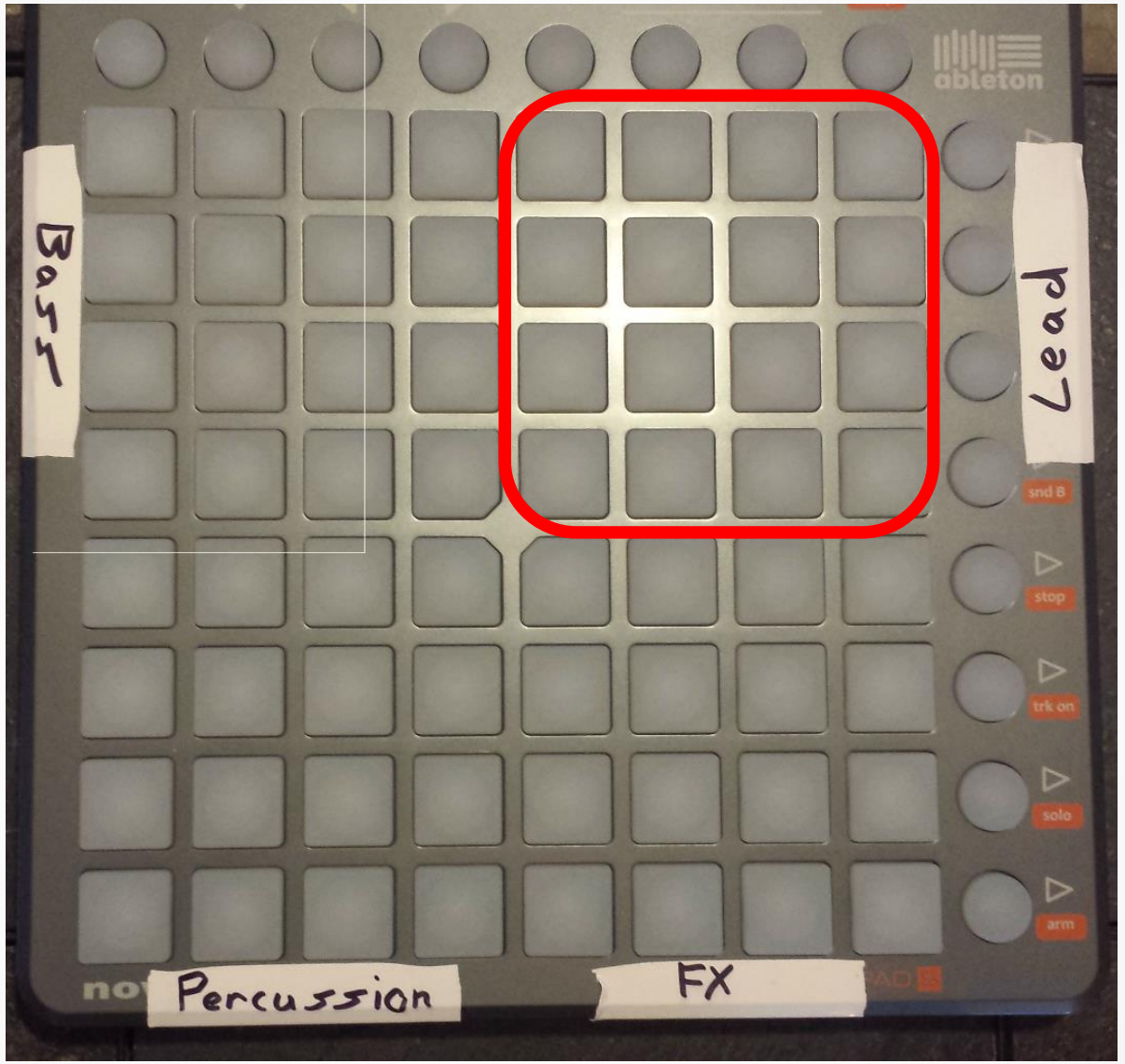

Lead

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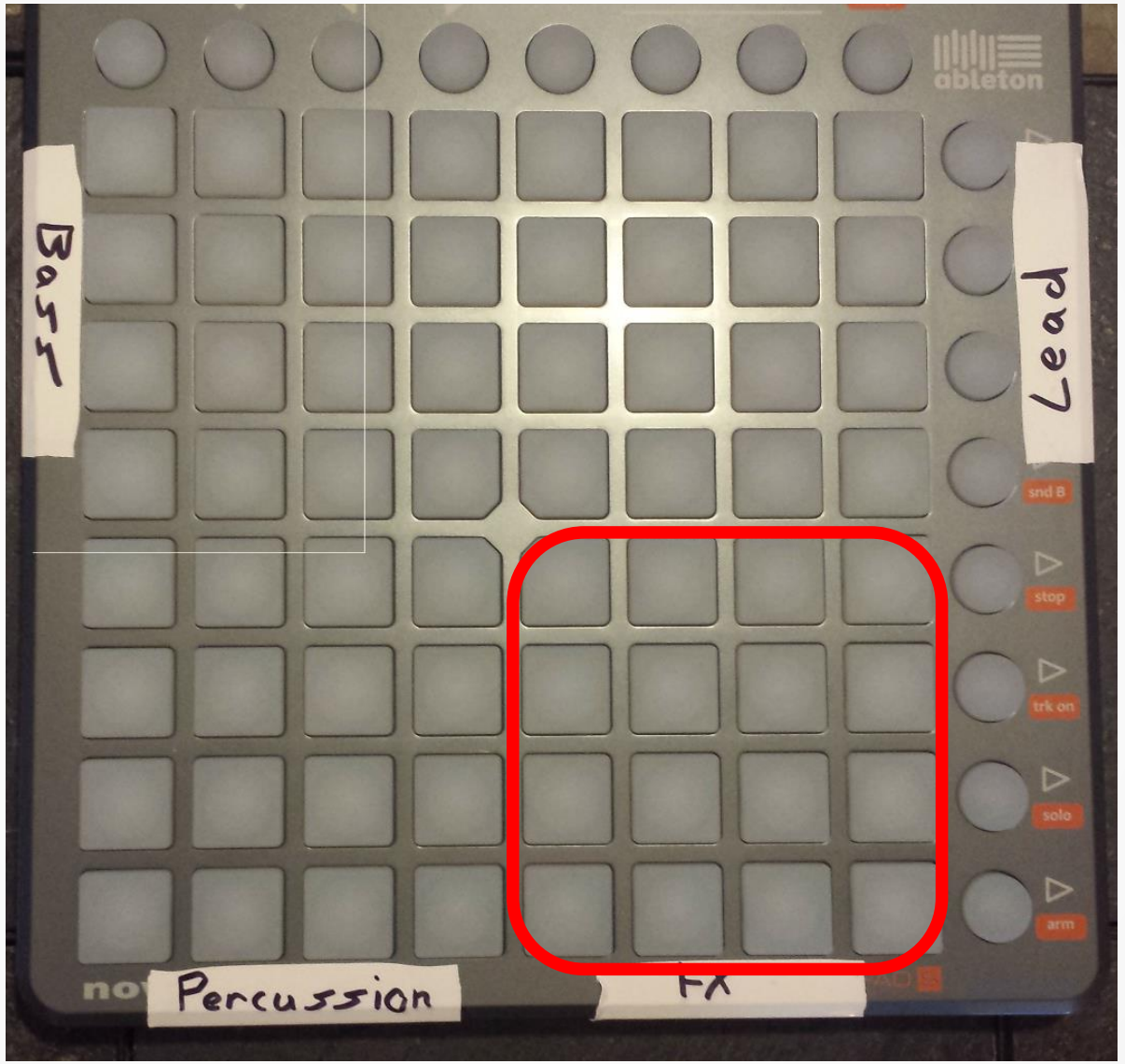

FX

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Some other presentations on this topic

- 8-bit composition unit? Composing for old school video games
- Creating 8-bit
- Engaging with popular and participatory cultures: Implications for teaching and learning
- From large ensembles to video games: Technology in music education
- Interacting with 8-bit
- Modern video game projects
- Multimedia ensemble: Performing live music with live video games
- Old school video game projects
- Sonic modding: Modding video game music and sound
- Video games in music education

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Upcoming publications on this topic

- O'Leary, J. & Tobias, E. (in press). Sonic Participatory Cultures within, through, and around Video Games. In *The Oxford Handbook of Music Making and Leisure*, edited by Roger Mantie and Gareth Dylan Smith. Oxford: Oxford University Press.

- Tobias, E. & O'Leary, J. (in press). Video Games. In *The Routledge Companion to Music, Technology & Education*, edited by Andrew King, Evangelos Himonides, and Alex Ruthmann. New York: Routledge.

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Music && coding

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Music && coding

- youtube.com/OCPDMusic
  - Playlists
    - Music && Coding

https://goo.gl/lbMvyt

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```
live_loop :floor do
  bd_arr = [(ring 10, 5, 10), (ring 6, 10, 6)]

  4.times do
    bd_unquant = rrand(0, master_unquant)
    sleep bd_unquant / 2

    sample :drum_bass_hard, amp: rrand(0.75, 1.1), rate: rrand(0.999, 1.001) unless one_in(10) || count > 3
    sample :drum_bass_hard, amp: rrand(0.75, 1.1), rate: rrand(0.999, 1.001) if one_in(3) && count == 4
    sleep s - (bd_unquant / 2)

    3.times do
      bd_unquant = rrand(0, master_unquant)
      sleep bd_unquant / 2
      sample :drum_bass_hard, amp: rrand(0.25, 1), rate: rrand(0.999, 1.001) if one_in(count == 4 ? bd_arr[1].tick : bd_arr[0].tick)

      sample :drum_splash_soft, amp: rrand(0.25, 1), rate: rrand(0.999, 1.001), release: 0.3 if one_in(6) && count == 4
      sleep s - (bd_unquant / 2)
    end
  end
end

live_loop :hhat do
  hh_amp = (ring 0.4, 0)
  hh_arr = [(ring 20, 10), (ring 10, 12, 20, 12), (ring 5, 12), (ring 1, 8)]
  hh_r = (ring 2, 4)

  if one_in(2)
    sample :drum_splash_hard, amp: rrand(0.2, 0.7), rate: rrand(0.999, 1.001) if one_in(2)
  else
    sample :drum_splash_soft, amp: rrand(0.2, 0.7), rate: rrand(0.999, 1.001) if one_in(2)
  end

  32.times do
    if one_in(2) && count > 1
      2.times do
        hh_unquant = rrand(0, master_unquant)
        sleep hh_unquant / 2
        sample :drum_cymbal_closed, amp: (rrand(0.15, 0.4) + hh_amp.tick), rate: rrand(0.999, 1.001) unless one_in(hh_arr[count - 1].ti
        sleep t - (hh_unquant / 2)
```

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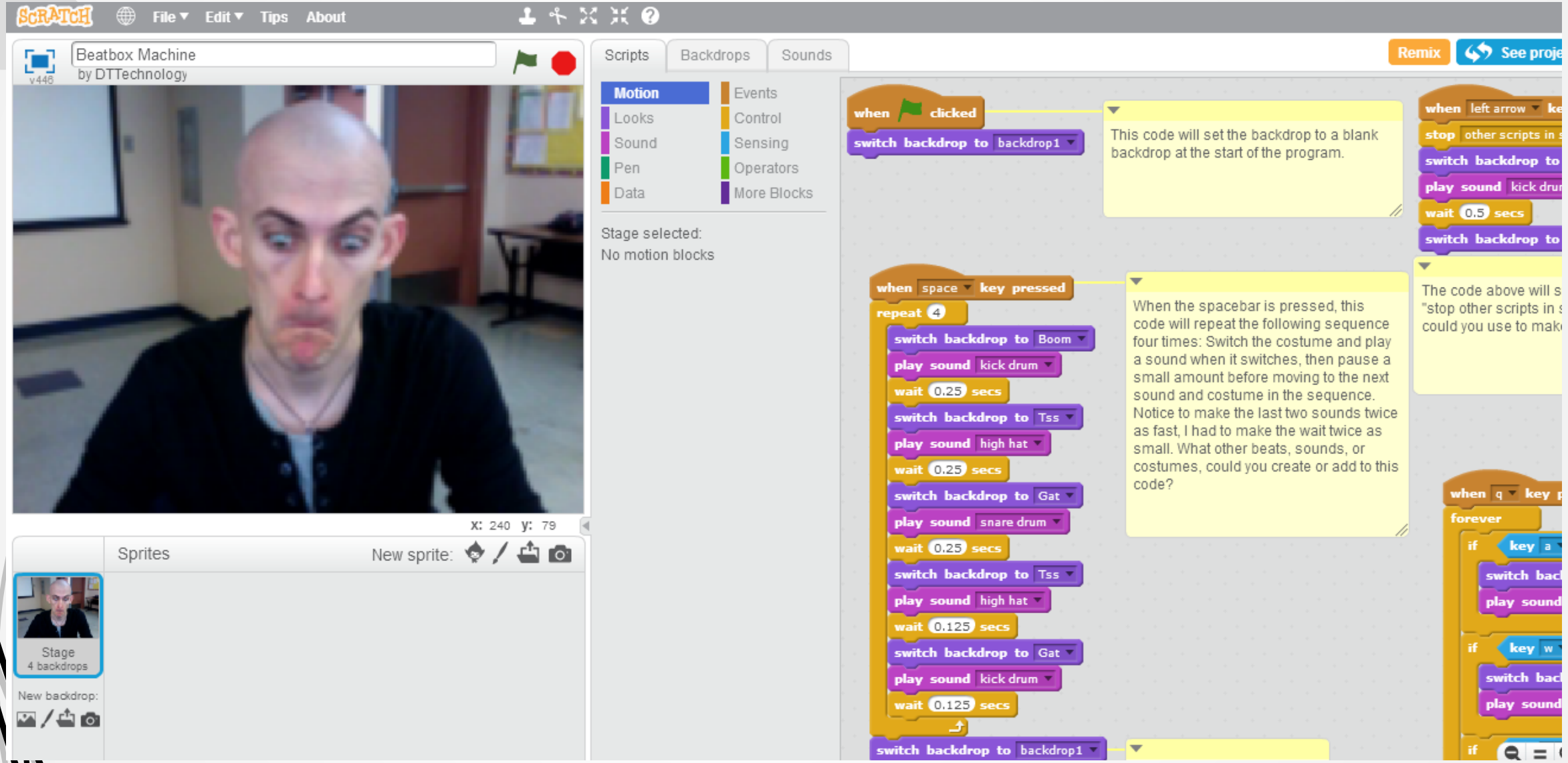

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```swift
    // MARK: - Actions
    // Pauses the music or plays it if already paused
    @IBAction func playOrPause(_ sender: AnyObject) {
        if player.isPlaying {
            player.pause()
            playPauseButton = UIBarButtonItem(barButtonSystemItem: UIBarButtonSystemItem.play, target: self, action: #selector(self.playOrPause(_:)))
        } else {
            player.play()
            playPauseButton = UIBarButtonItem(barButtonSystemItem: UIBarButtonSystemItem.pause, target: self, action: #selector(self.playOrPause(_:)))
        }
        // Changes the look of the playPauseButton
        toolbar.items![2] = playPauseButton
    }

    // Updates the current time to the slider's value
    @IBAction func scrub(_ sender: AnyObject) {
        player.currentTime = TimeInterval(scrubSlider.value)
    }

    // Changes the song when previous or next is pressed
    @IBAction func changeSong(_ sender: UIBarButtonItem) {
        switch sender {
        case nextSongButton:
            currentSong += 1
        case previousSongButton:
            // If we are less than two seconds through the song, this will simply restart the song by setting it to 0; otherwise, this will move to the previous song
            if player.currentTime > 2.0 {
                player.currentTime = 0
            } else {
                currentSong -= 1
            }
        default:
            print("Something didn't work in changeSong")
        }

        // Goes to start or end of the song list depending on position in songList
        if currentSong < 0 { currentSong = songList.count - 1 }
        if currentSong > songList.count - 1 { currentSong = 0 }

        newSong()                       // Switches to the new song
        player.pause()                  // Pauses the song so it will start playing with the next line of code
        playOrPause(playPauseButton)    // Starts the song - could also use player.play; however, it wouldn't change the image
    }

    // MARK: - Functions
    // Updates the slider to the current position in the song's length
    func updateScrubSlider() {
        scrubSlider.value = Float(player.currentTime)
    }

    // This will make it go to a random song if the user shakes the player
    override func motionEnded(_ motion: UIEventSubtype, with event: UIEvent?) {
        if event!.subtype == UIEventSubtype.motionShake {
            player.stop()  // Stops the music
```

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iPad 4:02 PM 100%

Some music created by Jared O'Leary

Partched

This is the final project for an electronic studio course I took during my doctorate. I had to compose and synthesize a piece from scratch. The name is a reference to a composer, Henry Partch, who inspired this piece.

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Some other presentations on this topic

- A k-8 nexus between music creation, sound design, and computer programming
- Beyond linear coding: Creating and innovating in arts-based programming
- Coding in the k-8 classroom
- Coding live music with Sonic Pi
- Sonic modding: Modding video game music and sound
- Starting an after school coding program

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Let's Talk

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