Coding Live Music with Sonic Pi

Jared O'Leary
Arizona State University
Avondale Elementary School District

Before we begin, download and install Sonic Pi by visiting www.sonic-pi.net

What's the plan?

- What is Sonic Pi?
- Hot Cross Buns
- Let's Explore
- Other Platforms, Resources, and Communities
- Let's Talk

How to reach the resources

- www.JaredOLeary.com
  - Presentations
  - Coding Live Music with Sonic Pi

What is Sonic Pi?

What is Sonic Pi?

- Composing
- Performing
- Improvising
- Aleatoric

Hot Cross Buns

Setting our tempo

1. use_bpm 144

Adding our notes

1. use_bpm 144
2.
3. play :e
4. play :d
5. play :c

Separating our notes

1. use_bpm 144
2.
3. play :e
4. sleep 2
5. play :d
6. sleep 2
7. play :c
8. sleep 4

Defining a function

```
1.  use_bpm 144
2.
3.  define :buns do
4.    play :e
5.    sleep 2
6.    play :d
7.    sleep 2
8.    play :c
9.    sleep 4
10. end
```

Congratulations, you recreated Cage's 4' 33"!

Calling our function

```
3.  define :buns do
4.    play :e
5.    sleep 2
6.    play :d
7.    sleep 2
8.    play :c
9.    sleep 4
10. end
11.
12. buns()
13. buns()
```

Starting our next phrase

12. buns()
13. buns()
14.
15. play :c
16. sleep 1

Using repeats

```
12. buns()
13. buns()
14. 4.times do
15.   play :c
16.   sleep 1
17. end
```

Using repeats

```
12.  buns()
13.  buns()
14.  4.times do
15.    play :c
16.    sleep 1
17.  end
18.  4.times do
19.    play :d
20.    sleep 1
21.  end
```

Completing our song

```
12.  buns()
13.  buns()
14.  4.times do
15.    play :c
16.    sleep 1
17.  end
18.  4.times do
19.    play :d
20.    sleep 1
21.  end
22.  buns()
```

Changing our synth

```
1.  use_bpm 144
2.  use_synth :tri
3.
4.  define :buns do
5.    play :e
6.    sleep 2
7.    play :d
8.    sleep 2
9.    play :c
10.   sleep 4
11. end
```

Shaping our notes

```
1.  use_bpm 144
2.  use_synth :tri
3.
4.  define :buns do
5.    play :e, release: 2
6.    sleep 2
7.    play :d, release: 2
8.    sleep 2
9.    play :c, release: 4
10.   sleep 4
11. end
```

Adding effects

```
13.
14.  with_fx :echo do
15.    buns()
16.    buns()
. . . . . .
24.    buns()
25.  end
```

In a different buffer

1. use_bpm 144

Creating our loop

1. use_bpm 144
2.
3. live_loop :perc do
4. end

Metal

```
1. use_bpm 144
2.
3. live_loop :perc do
4.   sample :bd_haus
5.   sleep 0.25
6. end
```

EDM

```
1. use_bpm 144
2.
3. live_loop :perc do
4.   sample :bd_haus if (spread 1, 4).tick
5.   sleep 0.25
6. end
```

Adding in another rhythm

```
1. use_bpm 144
2.
3. live_loop :perc do
4.   sample :bd_haus if (spread 1, 4).tick
5.   sample :elec_bong if (spread 3, 8).look
6.   sleep 0.25
7. end
```

…and another

```
1.  use_bpm 144
2.
3.  live_loop :perc do
4.    sample :bd_haus if (spread 1, 4).tick
5.    sample :elec_bong if (spread 3, 8).look
6.    sample :perc_snap if (spread 9, 12).look
7.    sleep 0.25
8.  end
```

Adjusting our amplitude

```
1. use_bpm 144
2.
3. live_loop :perc do
4.   sample :bd_haus if (spread 1, 4).tick
5.   sample :elec_bong if (spread 3, 8).look
6.   sample :perc_snap, amp: 0.3 if (spread 9, 12).look
7.   sleep 0.25
8. end
```

Back in our original buffer

```
12.
13. define :song do
14.   with_fx :echo do
15.     buns()
16.     buns()
. . . . . .
25.     buns()
26.   end
27. end
```

Press Run for Cage's encore

(there is a purpose for this)

Hip cross buns

```
1.  use_bpm 144
2.
3.  live_loop :perc do
4.    sample :bd_haus if (spread 1, 4).tick
5.    sample :elec_bong if (spread 3, 8).look
6.    sample :perc_snap, amp: 0.3 if (spread 9, 12).look
7.    sleep 0.25
8.  end
9.
10. song()
```

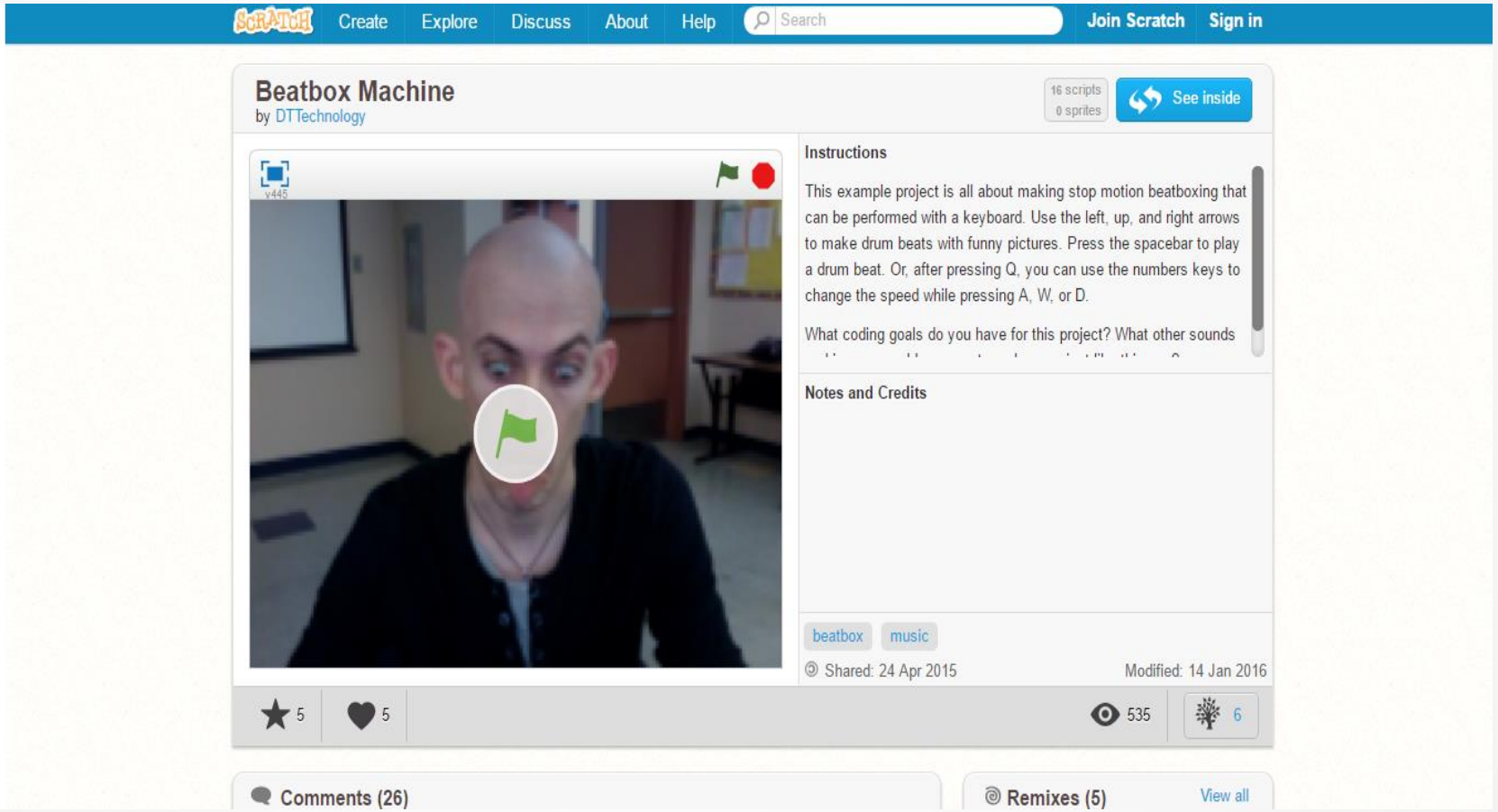
Let’s explore

Exploring with Sonic Pi

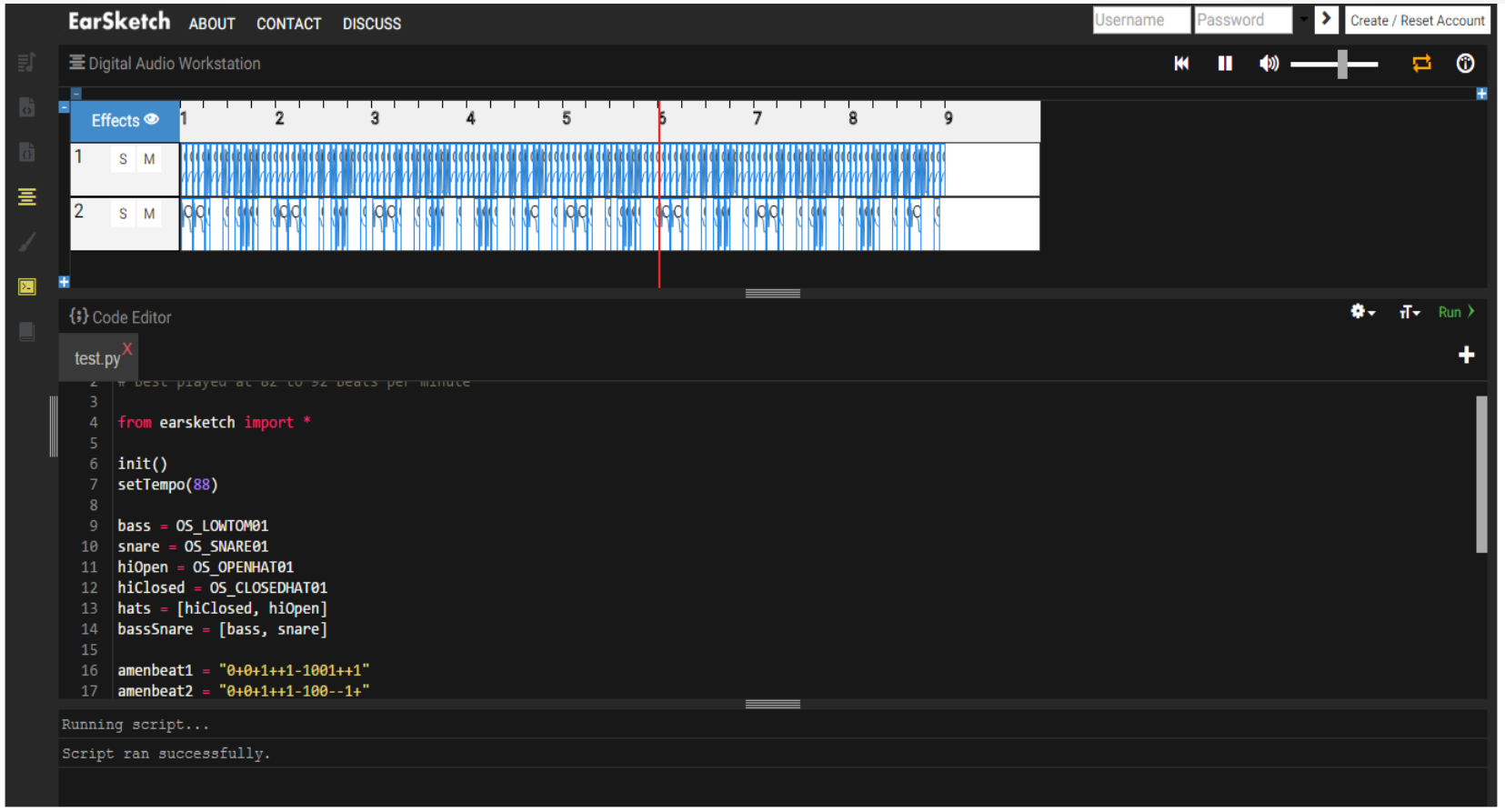
- Sonic Pi's built-in help
  - Tutorials
  - Examples
  - Synths
  - Fx
  - Samples
  - Lang(uage)
- www.JaredOLeary.com/sonic-pi

Other Platforms, Resources, and Communities

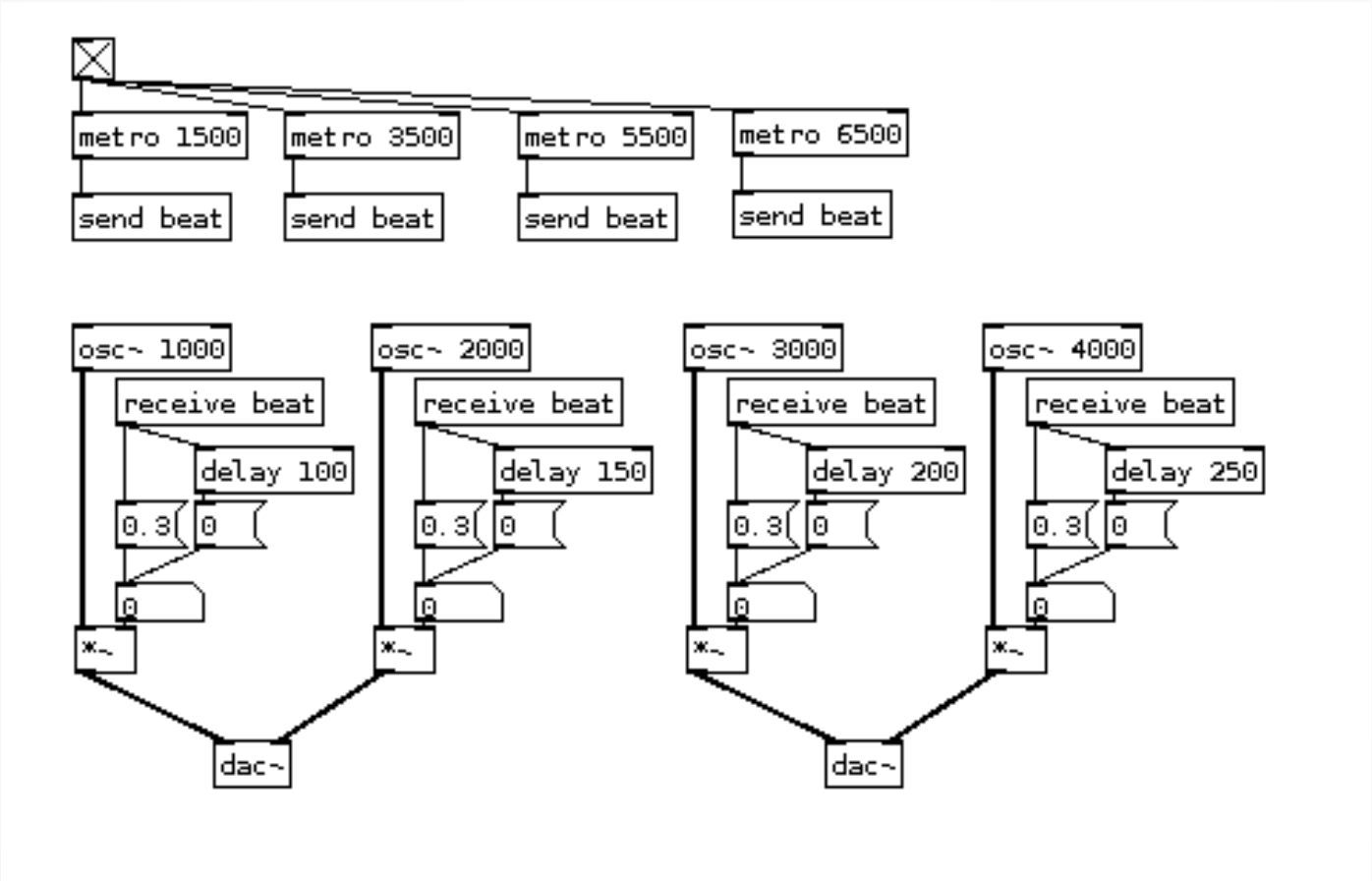
Scratch



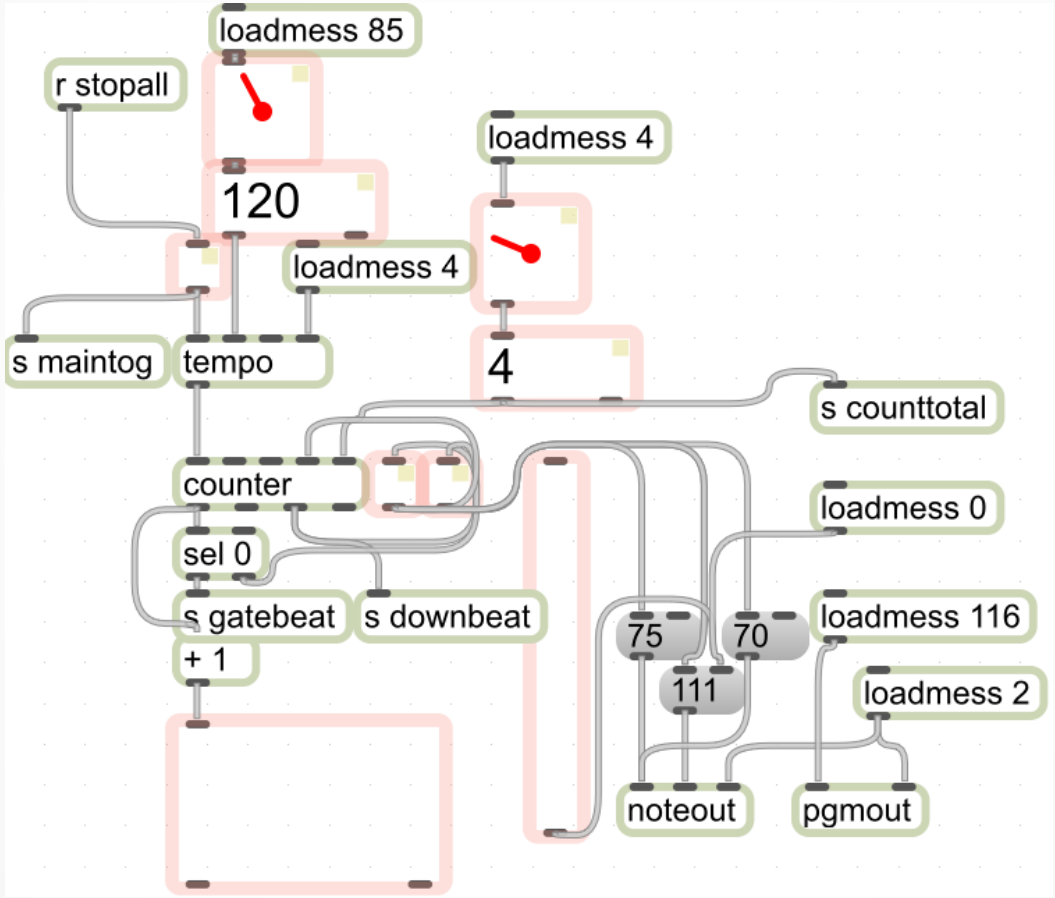
EarSketch



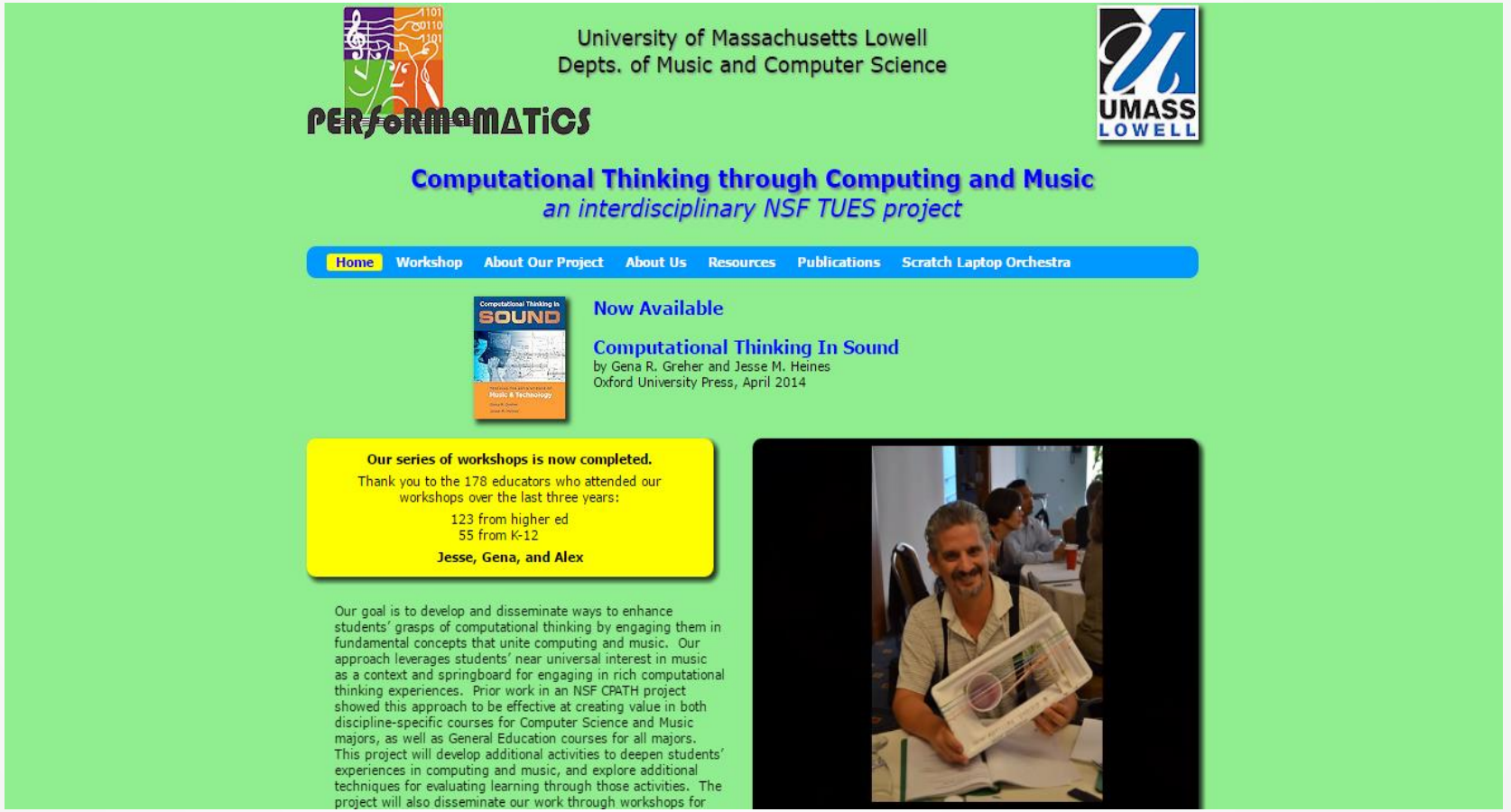
Pure Data (Pd)



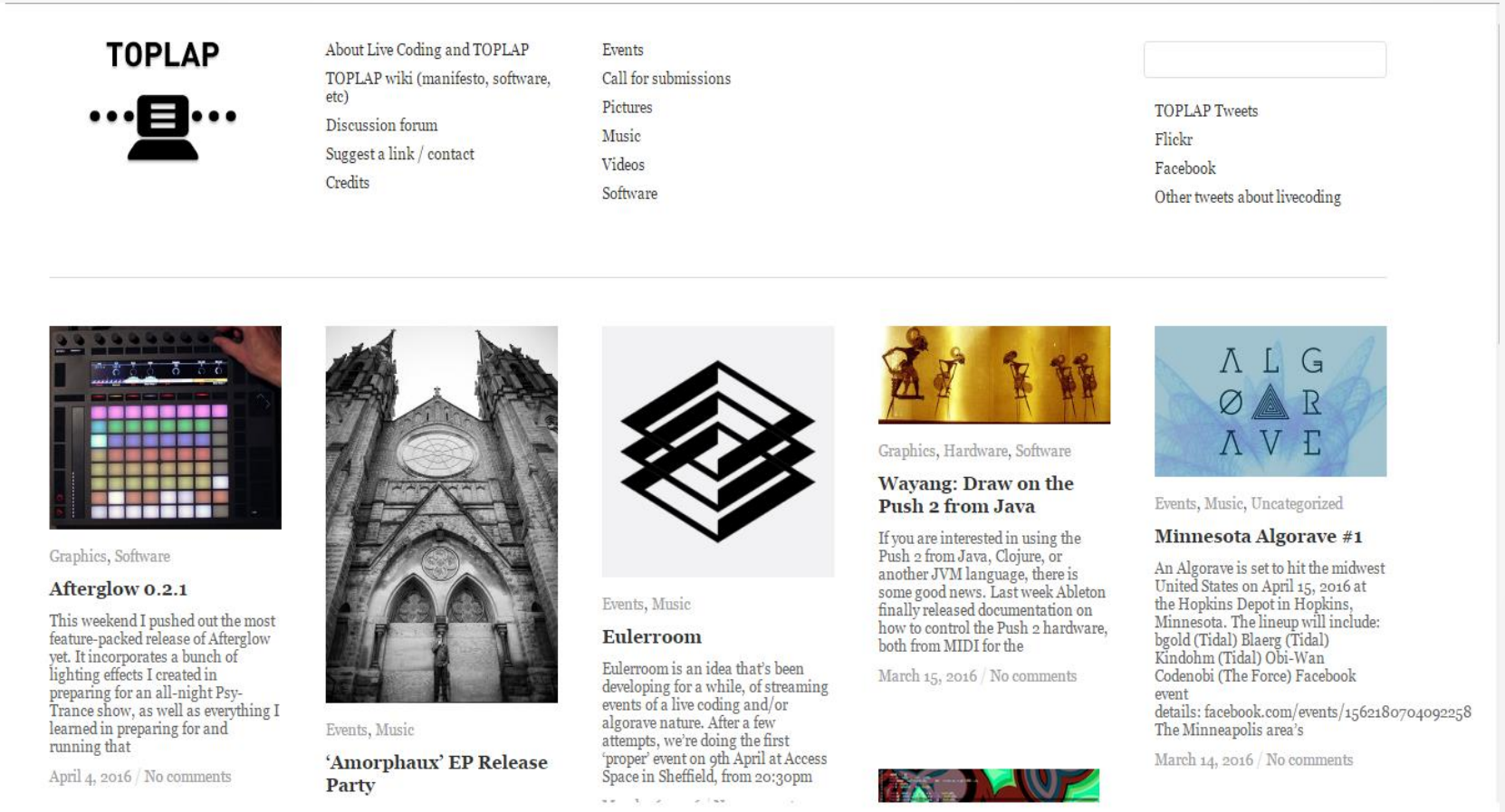
MAX for Live and MAX(/MSP)



Performamatics



TOPLAP



Let's talk

- www.JaredOLeary.com
  - Presentations
  - Coding Live Music with Sonic Pi