LIVE CODING

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LIVE CODING: EMBRACE THE NERDINESS!

- Computer code-based musical improvisation

- Code is written and modified on-the-fly

- Code is projected for audience to see

- Several environments available - I use Extempore

EXTEMPORE EXAMPLE

```
(define beep
```

EXTEMPORE EXAMPLE

```
(define beep
    (lambda (time)
```

EXTEMPORE EXAMPLE

instrument   pitch   velocity   duration (samples)

```
(define beep
    (lambda (time)
        (play-note time beep-inst 60 80 22000)
```

EXTEMPORE EXAMPLE

```
(define beep
   (lambda (time)
      (play-note time beep-inst 60 80 22000)
      (callback (+ time 44100) 'beep (+ time 44100)))))
```

callback time   function   next time argument

EXTEMPORE EXAMPLE

function definition

```
(define beep
    (lambda (time)
        (play-note time beep-inst 60 80 22000)
        (callback (+ time 44100) 'beep (+ time 44100))))
```

(beep (now))   function 'trigger'

current time (in samples)

EXTEMPORE EXAMPLE

```
(define beep
    (lambda (time)
        (play-note time beep-inst 60 80 22000)
        (callback (+ time 44100) 'bee (+ time 44100) )))

(beep (now) )
```

EXTEMPORE EXAMPLE

```
(define beep
    (lambda (time)

        ; do something musically interesting

        ; ...

        (callback (+ time 44100) 'beep (+ time 44100))))

(beep (now))
```

DJING VS LIVE CODING

	DJ	Live Coder
Control Level	audio stream	single note
Interface	graphical	language
Nerdiness	high	very high

DURING A PERFORMANCE...

```
(define beep
    (lambda (time)
        (play-note time beep-inst 60 80 22000)
        (callback (+ time 44100) 'beep (+ time 44100))))

(beep (now))
```

WRITING CODE

```
(define beep
    (lambda (time)
        (play-note time beep-inst 60 80 22000)
        (callback (+ time 44100) 'beep (+ time 44100))))

(beep (now))


(define boop
    (lambda (time)
        (play-note time boop-inst 60 80 22000)
        (callback (+ time 44100) 'boop (+ time 44100))))

(boop (now))
```

MODIFYING PARAMETERS

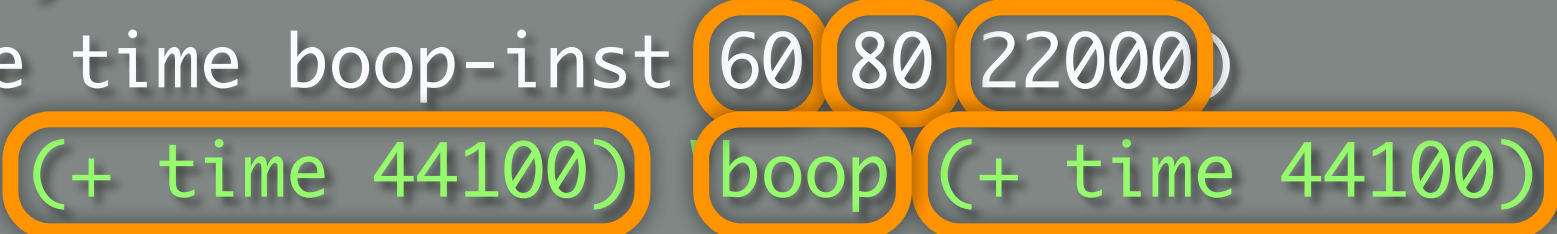```
(define beep
    (lambda (time)
        (play-note time beep-inst 60 80 22000)
        (callback (+ time 44100) beep (+ time 44100))))

(beep (now))
```
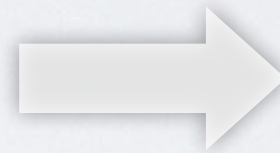
parameters

```
(define boop
    (lambda (time)
        (play-note time boop-inst 60 80 22000)
        (callback (+ time 44100) boop (+ time 44100))))

(boop (now))
```

DURING A PERFORMANCE...

- Write code

- Modify parameters

  - define trajectories

- Modify one function or parameter at a time

function 1

function 2

function 3

WHO IS LIVE CODING FOR?

- Musicians with an interest in programming and structure in music

- Programmers with an interest in creative uses for programming skills

- You don't have to be an expert

GETTING STARTED

- Extempore is freely available, see **extempore.moso.com.au** or **benswift.me**

- Tutorial videos available, example code, performance videos

DIGITAL CULTURES

- What's the relationship between medium and massage?

- Why do livecoders project their code? What does it add?

- Where can you see livecoding going in the future?

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