Distributed Performance in Live Coding

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Introduction

- I get a real buzz from live coding…

- But there's a lot to do, and only me to do it

- Feel like I have a lot of balls in the air

- What if I give some of those 'balls' to various members of the audience?

A Live Coding Performance

- Write code

- Modify parameters

  - define trajectories for the performance

- Modifying one function or parameter at a time

→

function 1

function 2

function 3

Distributed Performance

- This situation could do with some outsourcing!

- Delegate parametric manipulations to audience members

- Audience members send control data which can be integrated into the code by the live coder

Audience ➤ function 1

Audience ➤ function 2

Audience ➤ function 3

Audience ➤ function 4

function 5

function 6

What Do I Mean By 'Distributed Performance'

- The words 'distributed' and 'performance' are both burdened with multiple meanings

- In live coding, the evolution of parameters over time is an integral part of the performance

- By sharing this role amongst audience members, the role of 'performer' is distributed amongst all the participants

DP Opportunities

* New modality of performance in live coding

* Introduce novel musical material, to which the live coder must react

* Introducing a social dynamic between the audience participants

DP Conditions

- Live coding is already a cognitively demanding activity - must be mindful of adding extra complexity

- Set up distributed performance infrastructure ahead of time

- Feedback (audio and visual) is crucial to ensure the participants know what they are influencing

My DP Setup

iPhone or iPod Touch

wi-fi

(i) impromptu

Audience Participant

Audience Participant

Audience Participant

Audience Participant

MRMR OSC Controller
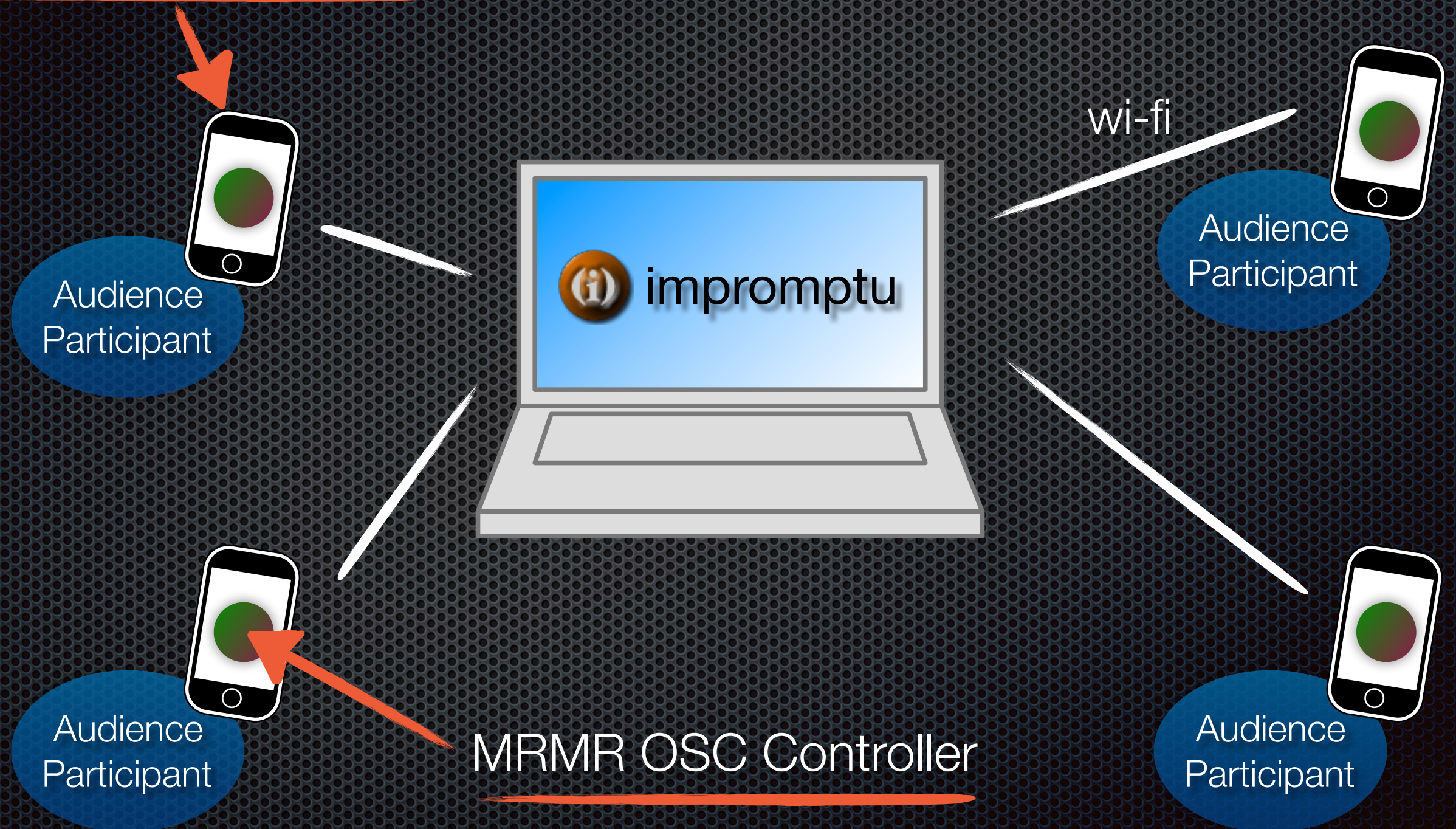
MRMR OSC Controller

- Open Source: mrmr.noisepages.com

- Free, available now from the App Store

- The goal: to turn the iPhone into a control device that's as flexible and dynamic as possible

- Device UI is configurable on-the-fly by the live coder using the MRMR Protocol

- Supports most of the affordances of the iPhone

  - on-screen buttons, sliders, plus the accelerometer

MRMR Setup

- Step 1: download free MRMR App

- Step 2: start MRMR App

- Step 3: enjoy!
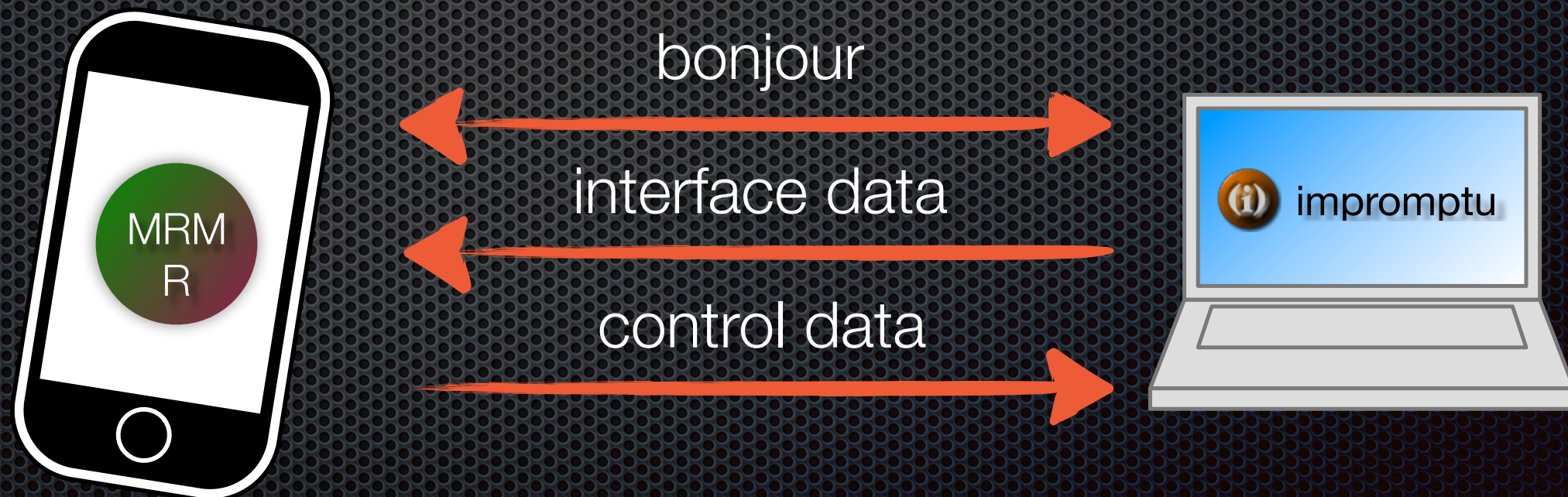
MRMR Interface Protocol

designates
'interface builder'

mrmr protocol
version

label

button

slider

/mrmrIB   /mrmrIB   mrmr_clear_all   2 touch

widget type

grid size/position

MRMR and Impromptu

- Developed a library to easily incorporate MRMR control data into impromptu

- To incorporate audience control:

```
(mrmr:distribute-control "piano" 1/4 "accelerometer")
```

function name

function callback rate

desired interface

MRMR and Impromptu

iPhone control data accessed here

```
; This is the piano function

(define piano
    (lambda (beat iphone-name)
        (play baby-grand (iphone 1) vel dur)
        (callback (*metro* (+ beat (* 1/2 1/4))) 'piano (+ beat 1/4) iphone-name)))

(piano (*metro* 'get-beat 4) "Johnboy")

; Here's where I can change who's in control of the piano:

(mrmr:reclaim-control "Johnboy")
(mrmr:distribute-control "piano" 1/4 "accelerometer")
```

Demo

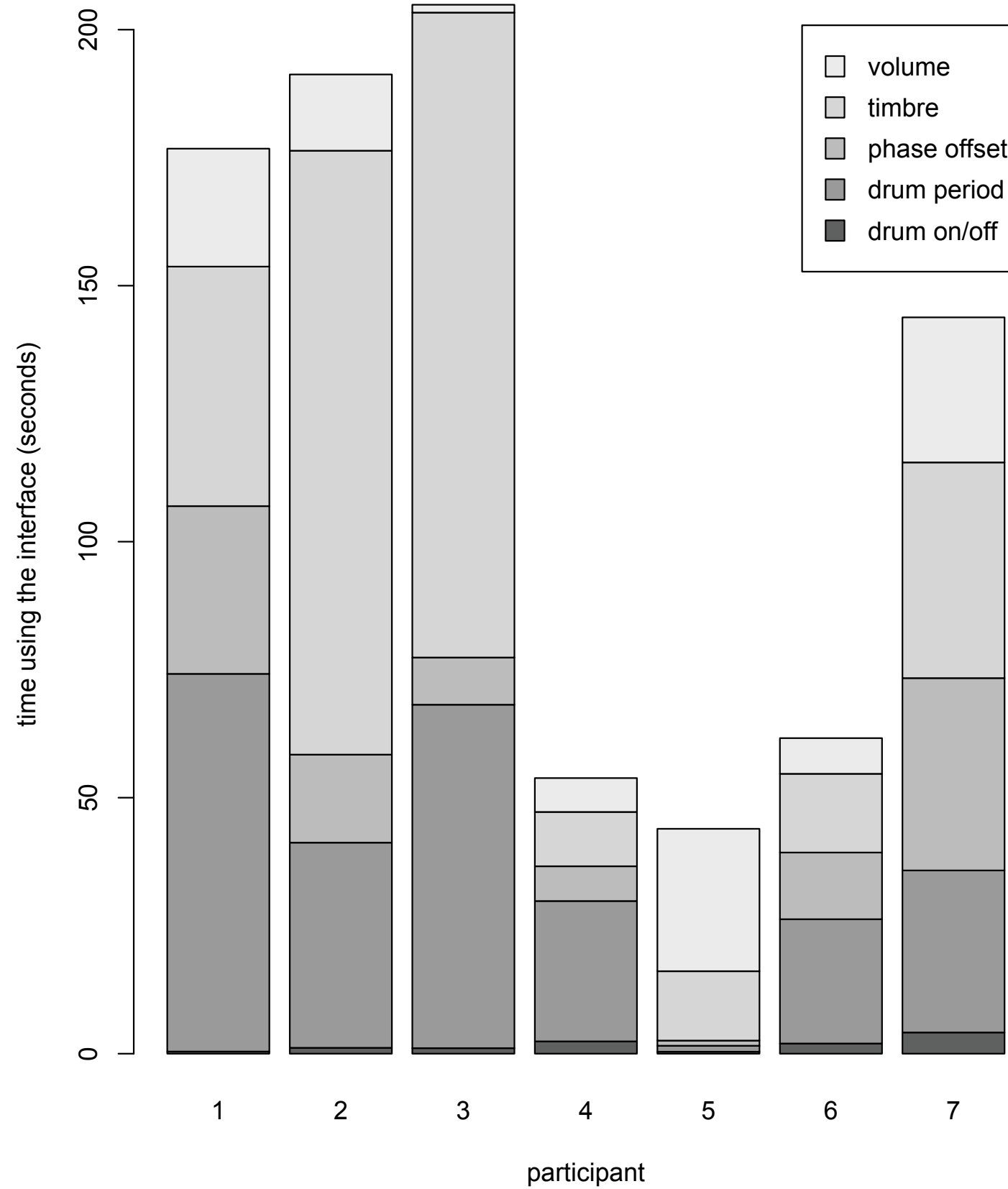# inMates Concert

- April 2009: initial test of the system

- 1 live coder, 7 audience performers

- Virtual 'drum circle'

- All interaction data was logged for analysis

inMates II

* Distributed live coding concert

* Tonight!

* See me today if you have an iPhone/iPod Touch and would like to participate

Future Work

* Continue to develop our DP system

    * MRMR App, Impromptu DP infrastructure

* Study the way audience performers utilise the control they are given

* Develop a mature aesthetic for DP

    * Infrastructure is in place, time to experiment

Conclusion

- Distributed Performance is a promising extension to current live coding practice

- DP allows audience members to engage with and participate in live coding in a way previously impossible

- For more information, see the conference paper

- To witness distributed performance in action, come to the concert tonight

Cheers

Any questions?

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