PLAYGURU

A PRACTICE COMPANION FOR MUSIC

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IN THIS TALK

What
How
Why (obviously first)
User responses
What's next
Live demo
PLAYGURU

A PRACTICE COMPANION FOR MUSIC

Develops musical and instrumental skills using sound-based exercises
PLAYGURU

takes initiative
guessing game
extend sequence when successful
sound
PLAYGURU

No "EEEEEEEEEH"
Intrinsic motivation
Designed for skill building
Music centered
Does not rely on visual interaction at all
NO "EEEEEEEEEH"?

PlayGuru has a subtle approach to keep one motivated: Affirmation or absence of it.

When lagging you will miss (some of) the rewards.
REWARDS

Extension of phrase length
Speed increase

Complexity up:
Insert notes, jump size, transpose
PROTOTYPE
... OH AND SOME INKSCAPE
WHAT'S INSIDE?
What's Going On Inside?
JACK

FluidSynth

Audio

MIDI

Tuner

Exercise 1

Exercise 2

Exercise 3

Exercise 4

Exercise 5

Exercise 6

OSC

Python state machine reads RPi's GPIO pins
Python state machine reads RPi's GPIO pins
#exercise flow
BPM-lower-bound=60
source=composer # other options: midifile | live

# composer settings
scale=T,T,S,T,T,T,S # major
lowest-note=59
smallest-interval=2
largest-interval=4

# assessment settings
valid-notes=0,4,-4,12,-12

dump=on
|00000000 4d 54 68 64 00 00 00 06 00 01 00 02 01 80 4d 54|MThd|
|00000010 72 6b 00 00 00 53 00 ff 03 0d 63 6f 6e 74 72 6f|rk..|
|00000020 6c 20 74 72 61 63 6b 00 ff 01 09 63 72 65 61 74|l track...creat|
|00000030 6f 72 3a 20 00 ff 01 1e 47 4e 55 20 4c 69 6c 79|or: ....GNU Lily|
|00000040 50 6f 64 20 32 3e 31 38 20 20 20 20 20 20 20 70|Pond|
|00000050 20 20 20 00 ff 58 04 02 02 12 08 00 ff|..X.......|
|00000060 51 03 0f 42 40 00 ff 2f 00 4d 54 72 6b 00 00 01|Q..B@
|00000070 23 00 c0 18 00 c0 18 00 ff 59 02 00 00 00 b0 07|#..|
|00000080 64 00 b0 07 64 00 b0 07 64 00 ff 04 17 61 63 6f|
|00000090 5a 73 74 69 63 20 67 75 69 74 61 72 20 28 6e 79|ustic guitar (ny|
|000000a0 6c 6e 6e 29 00 90 2d 5a 00 90 3b 5a 00 90 37 5a|lon)
|000000b0 82 20 90 3b 00 00 90 37 00 00 90 37 5a 00 90 3b|..|
|000000c0 5a 60 90 2d 00 00 90 28 5a 81 40 90 37 00 00 90|Z`.-|
|000000d0 3b 00 00 90 37 5a 00 90 3b 5a 81 40 90 28 00 00|.;-
|000000e0 90 2d 5a 81 40 90 37 00 00 90 3b 00 00 90 37 5a|.-Z.|
|000000f0 00 90 3b 5a 81 40 90 2d 00 00 90 28 5a 60 90 37|...Z|
MEASUREMENTS

Aubio library
pitch
onset

Threaded with shared time base
ASSESS / ADJUST

Compare response and example
Time needed / playing speed
Rhythm
"Clutter"... anything unexpected
ASSESS / ADJUST

DETERMINE SHORT-TERM SKILLS

Agility on instrument
Accuracy
Timing
ASSESS / ADJUST

SKILLS TO ACTIONS

... AND REWARDS

Extend phrase
Adjust speed
Adjust complexity
MAPPING
WHY?
WHY?

PERSONAL REASONS

Learn a lot & apply in work
New teaching material
Improve my guitar skills
WHY?

FOR WHOM?

Initially young/beginning guitarists, but... becoming clear it's also interesting for advanced players
PROJECT OBJECTIVES

Develop skills:
- Ear training, listening
- Instrumental skills
- Music skills: melody, rhythm
PROJECT OBJECTIVES

FUN

Include visually impaired and blind musicians
Practice **between** music classes

Additional to music teacher
PROJECT OBJECTIVES

Unmodified instruments: no permanent sensors
SO DEFINITELY NOT LIKE THIS
BUT MORE LIKE THIS
USER RESPONSES

superfocus
flow
forgiving, safe teacher
composer makes you creative
break from routine
FUTURE

Redesign based on user feedback
... and because the code... you know...
Polyphonic, at least the playback
Machine learning
Framework, user driven
Other instruments
IDEALLY... (?)
COME AND TRY IT...

I brought two pods

Interested in cooperation?
LIVE DEMO
HTML5/js presentation framework:
HTTP://LAB.HAKIM.SE/REVEAL-JS