Sonic Pi Workshop

Faculty of Education, 19 June 2019
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Notes available (clickable links) online at mrreedswchs.github.io

Advantages over other software

Bold = serious advantage over other music tech software

- Maths
  - **Randomisation**
  - **Choice**
  - **Mathematical processes**
  - **Microtones**
  - **Polyrhythm**
  - **Phasing and polytempo**

- Music tech
  - Synthesis
    - Envelope control (ADSR)
    - Amp, pan, and other controls via in-line options or `use_synth_defaults` / `use_sample_defaults`
  - Samples
    - Built-in samples
    - **External samples just by quoting path**
    - **Quickly change rate and pitch**
    - **Reverse!**
  - **Oscilloscope!**
  - **Live control** through `live_loop`
  - **OSC** and MIDI I/O
  - **Live audio in** through `synth :sound_in` and `live_audio` [1]

- Computer science
  - Loops + **iteration**
  - Chain methods
  - Defining and recalling variables
  - **Text-based, easy to share**

    - **The audible made visible (and not Western notation)**

- Other features
    - **Free**
    - **Record audio straight from the programme and control in real time**
    - **Built-in tutorial and code examples**

Disadvantages

- Maths
    - Easy to make addition mistakes so that loops don't synchronise

- Text-based concurrency; slight difficulty of `live_loop` and the friction between concurrent live_loops and linear compositions. This can be bridged with `in_thread`, but which do you privilege in a short SoW?
- Music tech
    - Text based so difficult to visualise, e.g. pitch of notes, envelope shape...
    - Clunky MIDI and Audio I/O. Compare this to Logic, for example.

- Computer science
    - Sterility? Relative difficulty of introducing `amp:` options or other expression

- Students might be better than you!

Points of interest

- Low barrier to entry but difficult to master
- Errors highlighted immediately
- Tangible outcomes or high degree of abstraction
- Possible STEM funding

Resources for learners

mehackit

- https://sonic-pi.mehackit.org/exercises/en/01-introduction/01-introduction.html
  Excellent and comprehensive course from beginner to expert. Lots of links to music theory and accompanying graphics/explanations. Highly recommended for use in lessons.

Raspberry Pi Foundation

- https://projects.raspberrypi.org/en/projects/getting-started-with-sonic-pi

More basic but still very useful course.

- https://github.com/raspberrypilearning/sonic-pi-lessons
  (Archived) Scheme of work developed by Pi foundation for the Live & Coding research project.

- https://www.raspberrypi.org/magpi-issues/Essentials_Sonic_Pi-v1.pdf
  Magpi magazine. A bit old now but a great PDF resource. Good ideas for making printed resources of your own.

Sam Aaron

- https://sonic-pi.net/tutorial.html
  The easiest resource, since it's baked into the app itself (just click the *Help* button in Sonic Pi). A great online resource too, presented in an ebook style.

- https://in-thread.sonic-pi.net/t/sonic-pi-online-resources/17
  Forum thread containing loads of resources

Youtube

- https://www.youtube.com/user/daveconservatoire/playlists
  Dave Conservatoire. 30 videos! Great stuff. While you're at it, check out his MuseScore series

Codecademy: Ruby

- https://www.codecademy.com/learn/learn-ruby
  Since Sonic Pi uses Ruby, this would be a useful course for teachers or to direct students who wanted to master the computer science elements.

Blogs and isolated posts

- https://rbnrpi.wordpress.com/
- https://manwaringmusic.blog/2018/04/24/sonic-pi-diaries-pt-2/
- https://www.bbc.co.uk/programmes/p031dq3j - Sonic Pi and BBC Ten Pieces

Research and further reading

- Collins (2016): Live coding and teaching SuperCollider: http://dro.dur.ac.uk/17855/1/17855.pdf
- https://algorave.com/
- https://toplap.org/

Sonic Pi in use

- A playlist of my explorations and my students' work: https://www.youtube.com/playlist?list=PLUzqDorR42SQpTcLEXTBuj-D0rAYYI52A
- Sonic Pi in use in the Albert Hall: https://vimeo.com/328673793#t=59m10s

Other stuff

- https://github.com/tmcw/big - Simple JS presentations
- http://jmcglone.com/guides/github-pages/ - Simple web storage
- http://www.gitbook.com - WYSIWYG ebook/tutorial creation. Absolutely brilliant. Great github integration if you fancy.
- https://www.patreon.com/samaaron - Sonic Pi needs support to continue development

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1. Don't forget to stop! `live_audio :foo, :stop` ↩