

Hacking music with Haskell

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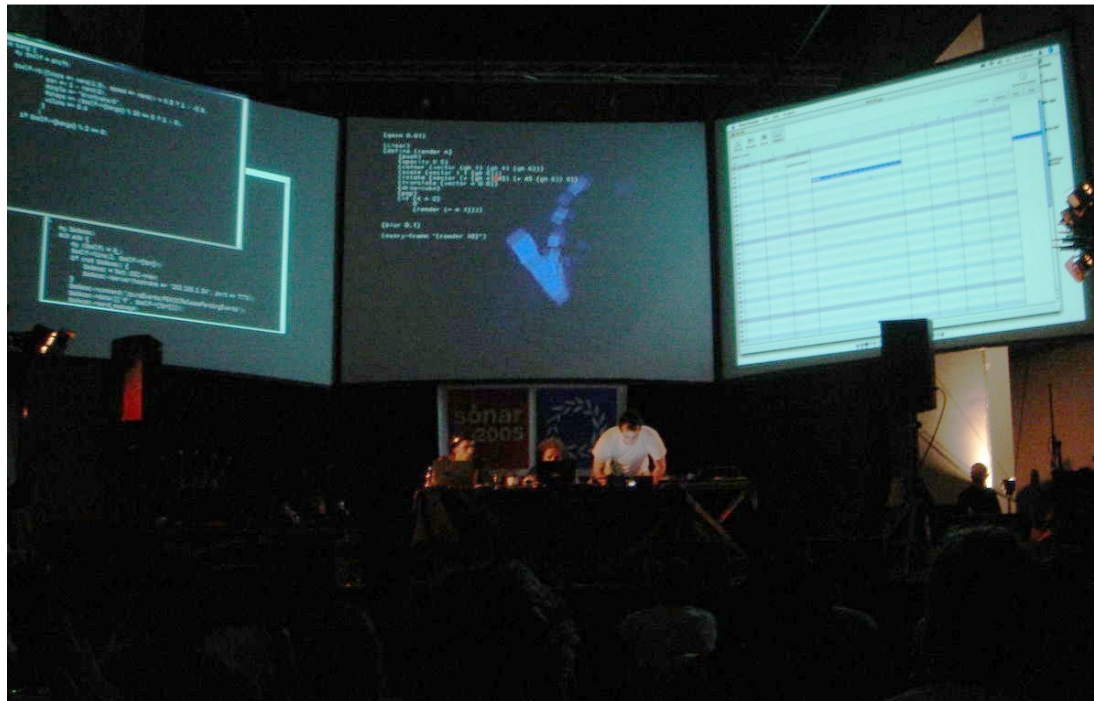
- Interactive programming
- Livecoding
- TOPLAP organisation
- Perl music demo
- Haskell98
- Domain Specific Languages
- Useful Haskell libraries
- Haskell music demo
- Summary

Interactive programming

- the writing of parts of a program while it is active
- source code is the main interface to the program
- no design cycle - test while implementing

Livecoding

- Interactive programming before an audience
- Form of improvisation, with text



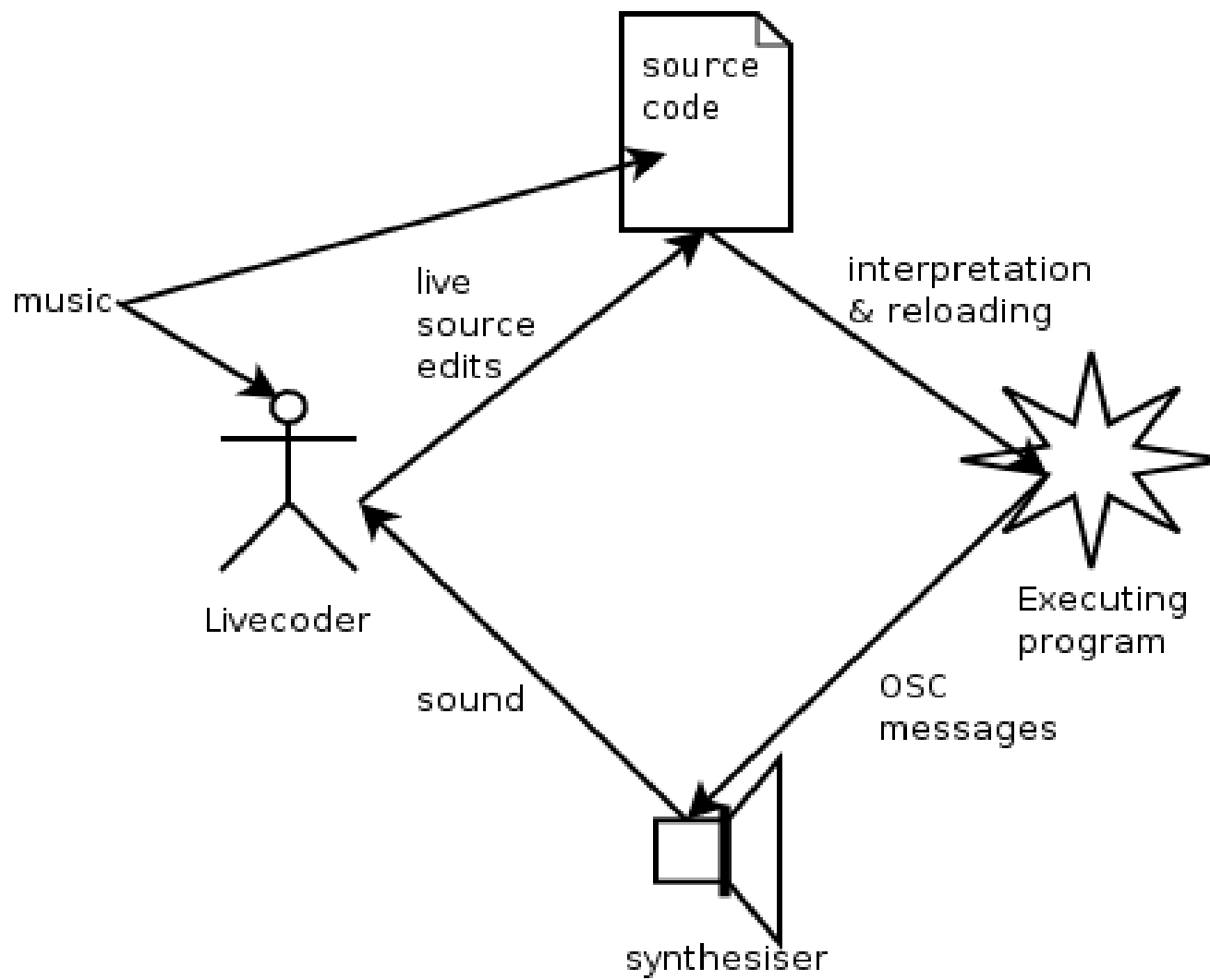
TOPLAP

- The Organisation for the Proliferation of Live Algorithm Programming
- A hundred or so members
- Manifesto includes “show us your screens”
- <http://toplap.org/>

Perl demo

- please put pl.avi here – 20 second movie

Stupid diagram



Haskell98

- Pure functional programming language
- Loved by mathematicians
- Easy to define own syntax, so useful for making embedded Domain Specific Languages

Domain specific languages

- Language with syntax and/or semantics tailored for a particular problem domain ...
- ... for example, making music

OpenSoundControl

- Network protocol for music communications
- Similar to MIDI, but far more flexible
- Haskell library part of hsc by Rohan Drape

hs-plugins

- Haskell library for dynamically (re)loading code
- Allows interactive programming

My first music DSL

- <<+ add a pulse with given period
- <<- remove a pulse with given period
- <<< offset pulses

My music DSL

4 <<+ 0

makes this pattern:

x---x---x---x---x---x---x---

3 <<- (4 <<+ 0)

makes this pattern:

---x---x-----x---x-----

Haskell demo

- hs.avi goes here
- 60 seconds – worth 3 slides!

Future

- Extend language
 - more flexible timing
 - control over timbre
- Software actor
 - musical software that improvises live using this language (my MSc project)

Summary

- Music DSLs are great
- Haskell is great for music DSLs
- TOPLAP is good too - <http://toplap.org>
- My personal website is <http://yaxu.org/>
- livecoding band I'm in is at <http://slub.org/>
- My academic website is <http://doc.gold.ac.uk/~ma503am/>
- My email is alex@slab.org
- Thanks!