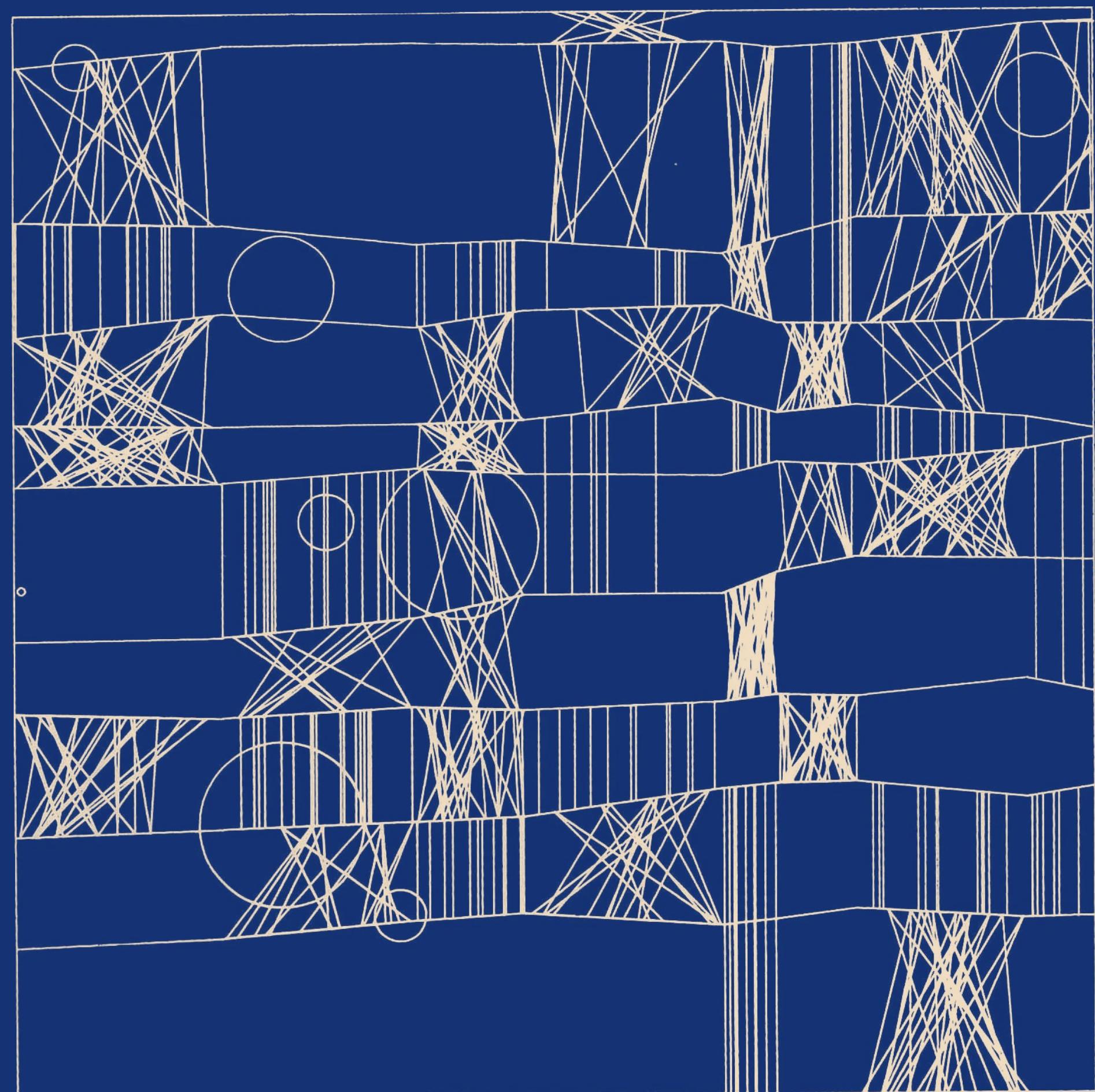


# A MICRO-COMPUTER NETWORK BAND:



1965 — First two exhibitions of computer-generated art by Frieder Nake in Stuttgart and Michael A. Noll in New York

Computer art pioneers used machine code and FORTRAN to write programs to algorithmically generate patterns printed using a plotter.

Nake explored randomness in "Homage to Paul Klee" but he also did not want computers to become "a source of pictures for galleries".

**Programming remains focused on writing code for an algorithm.**

# Programming and computer art

```

run ▶ stop □ rec ○ save + load ⌂ size ⌂ size ⌂ scope ▾ info λ help ▾ prefs ▾
1 # Coded by Sam Aaron
2
3 live_loop :haunted do
4   sample :perc_bell, rate: rrands(-1.5, 1.5)
5   sleep rrands(0.1, 2)
6 end
7

1 Welcome to Sonic Pi
1.1 Live Coding
1.2 Exploring the Interface
1.3 Learning through Play
2 Synths
2.1 Your First Beeps
2.2 Synth Options
2.3 Switching Synths
2.4 Duration with Envelopes
Tutorial Examples Synths Fx Samples Lang
  
```

The interface shows a code editor with the following code:

```

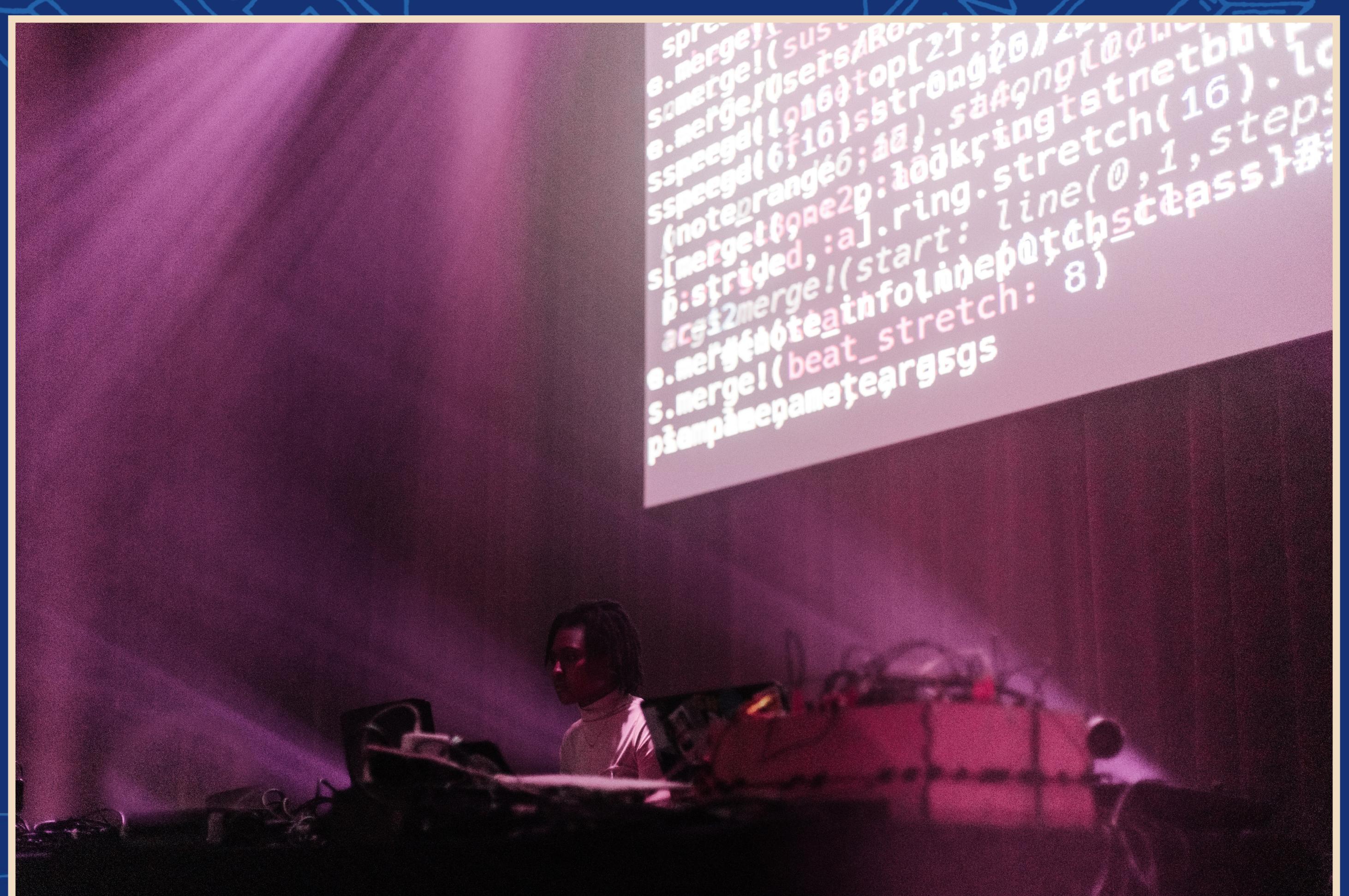
live_loop :haunted do
  sample :perc_bell, rate: rrands(-1.5, 1.5)
  sleep rrands(0.1, 2)
end
  
```

Below the code is a graphical interface with various components labeled: DAVID BEHRMAN (TIMBRE SENSING COMPUTER CONTROLLED HI-Q FILTERS), JOHN BSCHOFF (HARMONIC INTERVAL FINDER CHORD PRODUCER), RICH GOLD (CIRCULAR READINGS OF 3-D LANDSCAPE), and JIM HORTON (JUST-INTONED MELODY PRODUCING ALGORITHM). Arrows indicate signal flow between these components and the live\_loop block.

1978 — The League of Automatic Music Composers used a network of KIM-1 microcomputers as a musical instrument.

Each player's microcomputer played its own composition and reacted to information from other microcomputers and human players tuning the system.

**Computers turn into pre-programmed music instruments.**



2000 — First live coded music performances are performed by writing and executing code on-the-fly.

Live coders believe that code should be seen as well as heard, algorithms are thoughts, and programs are instruments that can change themselves.

Live coding came to clubs with the first Algorave event organized in 2011 and into the classroom with the Sonic Pi live coding environment in 2012.

**Program code becomes a live musical instrument.**

```

run ▶ stop □ rec ○ save + load ⌂ size ⌂ size ⌂ scope ▾ info λ help ▾ prefs ▾
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The interface shows a code editor with the following code:

```

live_loop :haunted do
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```

Below the code is a graphical interface with a "Welcome friend :-)" message and a "Help" section containing the same text as the main interface. At the bottom, it says "Sonic Pi v3.2.2 on Mac".