KeyKit

A Scripting Language and GUI Interface for MIDI

Tim Thompson
me@timthompson.com
https://timthompson.com

What is KeyKit?

- Scripting language

- Specialized for algorithmic and realtime MIDI

- Multi-window GUI

- Large number of experimental GUI tools

- Convenient interactive and improvisational use

- Complete source code freely available

Development History

- 1.0 - BASIC-like
- 2.0 - realtime
- 3.0 - grammer, rewrite, fast enough to avoid built-ins
- 4.0 - graphics
- 5.0 - first multi-window attempts, multi-tasking, fifos, tools using tasks/fifos
- 6.0 - object-oriented, multi-window interface completely rewritten, pull-off menus/buttons
- 7.0 - support for multiple MIDI ports

More Details

- Scripting language
  - interpreted, multi-tasking, graphics
- Specialized for algorithmic and realtime MIDI
  - first-class "phrase" data type
  - realtime task scheduling, interleaved at the instruction-level
  - MIDI input is always being recorded
- Multi-window graphical user interface
  - completely implemented in user-defined KeyKit code
  - pull-off menus and buttons
- Large number of experimental GUI tools in library
  - all in KeyKit code, easily customized and extended
  - new tools easy to create, and can embed existing tools

MIDI Phrase is a first-class data type

- Time-ordered list of MIDI notes

    - Includes complete notes with duration and length

- Structure-like manipulation of attributes

    ```
    ph.pitch += 12
    ```

- Looping

    ```
    for ( nt in ph ) {
      nt.vol += rand(10)
    }
    ```

- Select operation:

    ```
    ph = ph1 { ??.dur > 1b }
    ph = ph1 { isonbeat(??,4b) }
    ph = ph1 { rand(3)==0 }
    ph = ph1 { isinscale(??,scale) }
    ```

KeyKit - the GUI

- Completely implemented with Keykit code, even pull-off menus, dragging of windows, window-manager-like operations, etc.

- Each tool is independent, with consistent methods for resizing and inter-tool communication

- Consistent saving/restoring mechanism is highly leveraged:

  - Copying between like tools
  - Copy/paste of entire tools
  - Moving tools between "pages"
  - Manipulating of tools within tools
  - Broadcasting of a tool and its contents across a network

Availability and Resources

- Freely available with source code for non-commercial use
  - `https://github.com/nosuchtim/keykit`

- Windows, Linux, and Raspbian executables available

- Documentation included:
  - Tutorial, tools reference, language reference, hacking guide

- Slides from a much longer talk with more language details:
  - `https://timthompson.com/talks`

- Questions: `me@timthompson.com`

Demo

KeyKit

A Scripting Language and GUI Interface for MIDI

Slides can be found at
https://timthompson.com/talks

Tim Thompson
me@timthompson.com
https://timthompson.com