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A Web-Based MIDI Controller for Music Live Coding

Overview

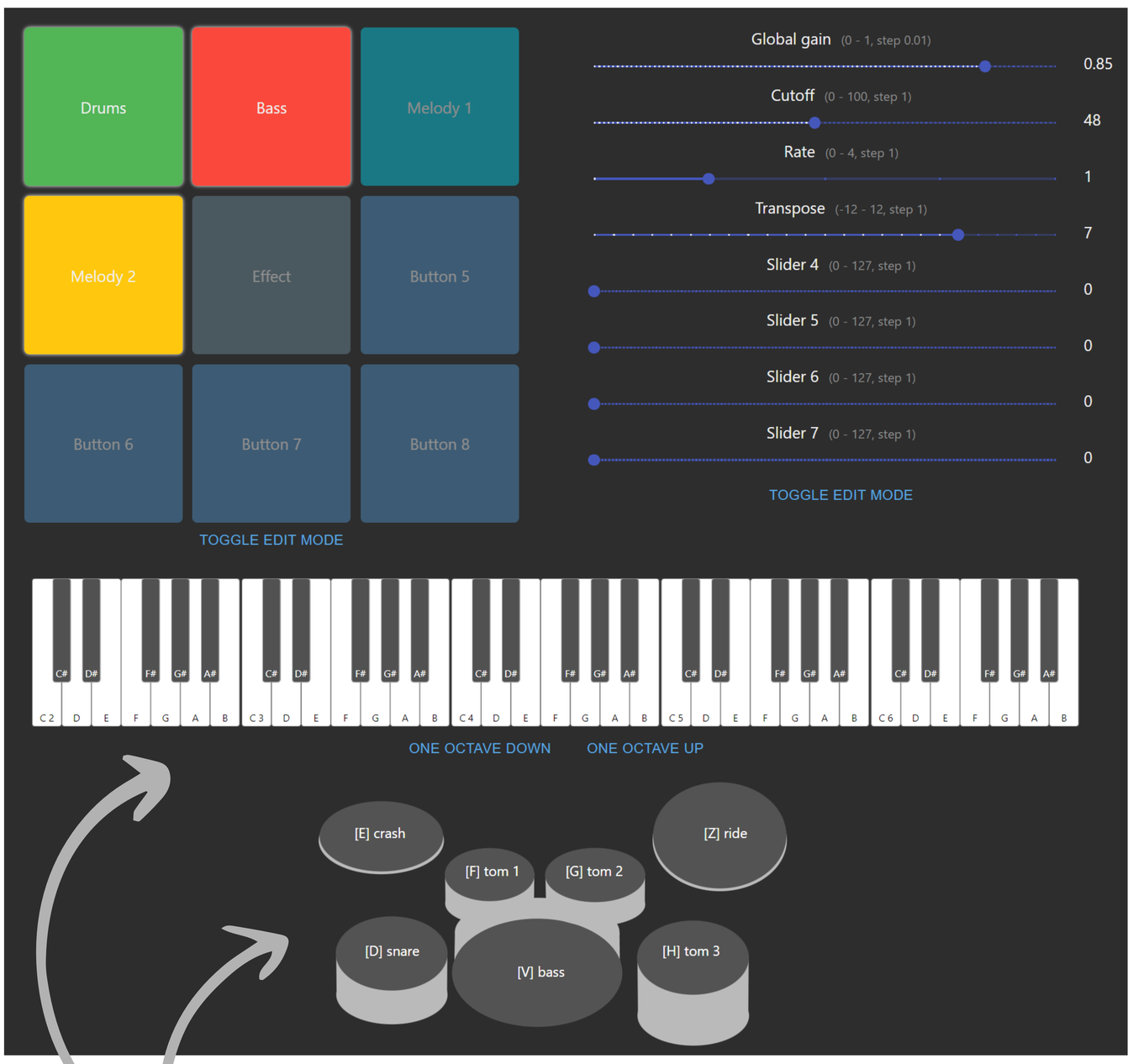
- Live coding music allows creating music through code with immediate results
- Sonic Pi is a free live-coding environment designed to help teaching children to code
- Some musical features (toggle, fade, improvisation) are hard to implement
- We propose a free and easy to learn visual interface for these features
- The goal is to let users focus on the creative part of live coding
- Compared to hardware, our approach is cheaper and more customizable
- Open-source and accessible: source code and web app available

Button Grid

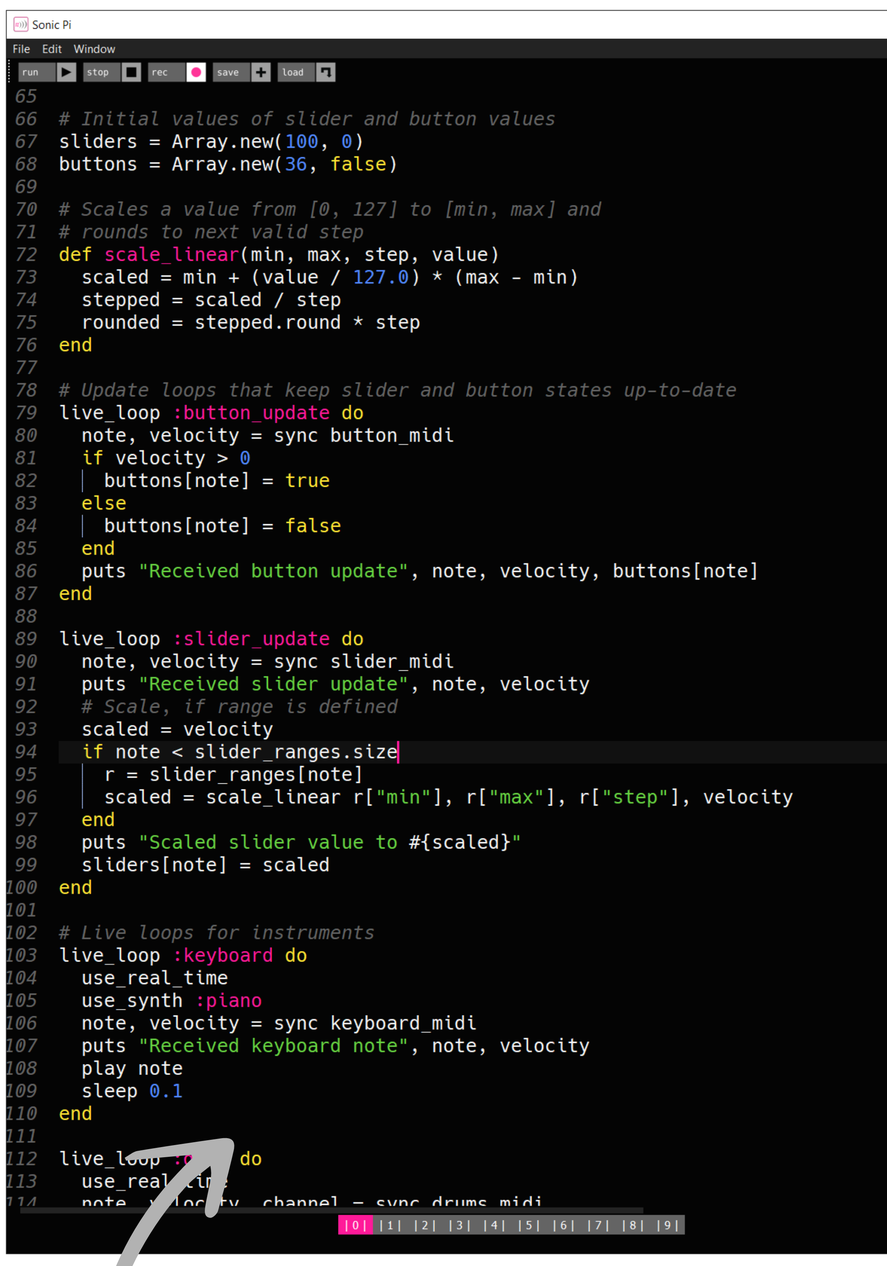
- Allow *toggling* tracks, effects, ...
- Example: toggle a melody line
- Can be customized with colors and labels

Sliders

- Allow *influencing* effects interactively
- Example: controlling a fading curve while live performing
- Can be customized with minimum, maximum, step values



MIDI



Instruments

- For live improvisation, by interactively inputing notes
- *Keyboard*, played through mouse or touch screen
- *Drums*, played through mouse or computer keyboard

Communication & Boilerplate

- Communication through *MIDI*
- No technical lock-in: users can switch to hardware MIDI controllers anytime
- Boilerplate code receives MIDI and changes variables
- Variable values can be used arbitrarily in the user's code

Limitations & Future Work

- Latency makes improvisation difficult (also for hardware)
- No haptic feedback as with hardware knobs, buttons, sliders
- Future work: integrate visual feedback on what notes are played, allow to visually control effects with ADSR envelopes

visus.uni-stuttgart.de/en

Supplemental material and live demo
github.com/visvar/sonic-pi-controller

More of our research
visvar.github.io

Cyber Valley