Live Looping Electronic Music Performance with MIDI Hardware

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ABSTRACT

I have spent much of the last three years building a *Web Audio* based desktop application for live electronic music performance called *Loop Drop*. It was inspired by my own frustration with existing tools for live performance. I wanted a tool that would give me, as a performer, the level of control and expression desired but still feel like playing a musical instrument instead of programming a computer.

My application was built using web technologies such as JavaScript and HTML5, leveraging existing experience as a web developer and providing an excellent workflow for quick prototyping and user interface design. In combination with *Electron*, a single developer can build a desktop audio application very efficiently.

Loop Drop uses Web MIDI to interface with hardware such as *Novation Launchpad*. The software allows creation of sounds using synthesis and sampling, and arranges these into "chunks" which may be placed in any configuration across the midi controller's button grid. These sounds may be triggered directly, or played quantised to the current tempo at a given rate using "beat repeat". Everything the performer plays is collected in a buffer that at any time may be turned into a loop. This allows the performer to avoid recording anxiety — a common problem with most live looping systems. They can *jam out* ideas, then once happy with the sequence, press the *loop button* to lock it in.

In my performance, I will use *Loop Drop* in conjunction with multiple *Novation Launchpad* midi controllers, to improvise 15 minutes of electronic music using sounds that I have organised ahead of time. The user interface will be visible to the audience as a projection.

I will also be demonstrating the power of hosting Web Audio in Electron by interfacing with an external LED array connected over *Serial Peripheral Interface Bus (SPI)* to be used as an audio visualiser light show.

WEB LINKS

Loop Drop website: http://loopjs.com

GitHub project: https://github.com/mmckegg/loop-drop-app

Electron: http://electron.atom.io

Video of a recent performance given using my application: https://www.youtube.com/watch?v=L2BVDJWHdy0