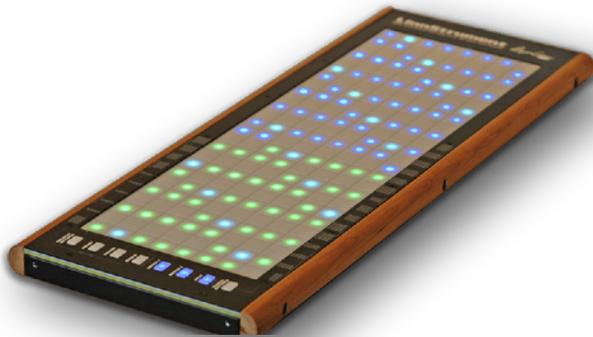


Multi Dimensional Controllers (MPE) and Modeled Synthesis

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CCRMA Open House 03/02/2018

This Presentation Can be Found at:

<http://www.moforte.com> go to the “News and Media” section

Or

<http://www.moforte.com/ccrma-open-house-presentation-322018/>

MPE

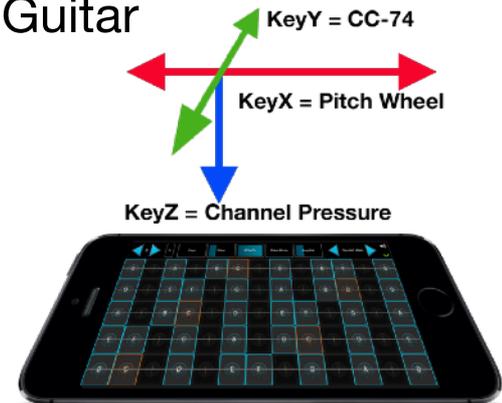
MIDI Polyphonic Expression

- The spec was ratified in January (2018)
- A set of *conventions built on MIDI 1.0* to communicate *multidimensional control data*.
- Enables *independent expression* for each note or row.
- *Already supported* by over 50 hardware and software products.

MPE in a Nutshell

- Derivative of Multi Mode (MIDI Mode 5), enabled with RPN-6.
- Can be Channel-Per-Note (for Keyboards, like the Seaboard) or Channel-Per-Row (String) (GeoShred, LinnStrument, Guitar Controller).

- Expression Control Conventions.
 - KeyX – Pitch Bend (Roli calls this *Glide*)
 - KeyY – CC-74 (Roli calls this *Slide*)
 - KeyZ – Channel Pressure (Roli calls this *Press*)



- Provides for master channels (typically 1 or 16) that globally control the MPE voice channels. (ie modWheel to all voice channels)
- Provides for a low/high split, and each split can have it's own master channel.

Modeling Synthesis and MPE



- Models are parameterized and as such can be musically expressive.
- Until recently, the options for expressing musical parameters were limited, *and affected all notes*, pitch wheel, mod wheel, knobs...
- **MPE creates a standard for individual expressive control on a per-note or per-row (string) basis.**

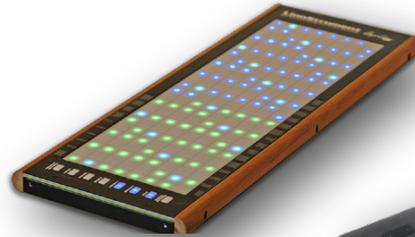
MPE + Modeled Synthesis

... **BIG DEAL**

- MPE makes a whole new generation of controllers possible. Whatever instrument makers dream up!
- MPE offers an expressive performance mechanism for parameterized synthesis methods. Physical Modeling, Virtual Analog, FM, ... others (note anecdote about Sondius)
- **Together, whole is greater than the sum of the parts!**

Some MPE Controllers

- LinnStrument



- Seaboard



- GeoShred



- KMI K-Board Pro 4



- Haken Continuum



- Artiphon INSTRUMENT 1



- Sensel Morph



- Joué



Some MPE Modeled Synths

- GeoShred



- SWAM



- Animoog/Model 15



Demos

- [GeoShred Controlling SWAM Sax \(Jordan Rudess\)](#)
- [Seaboard and LinnStrument controlling GeoShred](#)
- [Seaboard Controlling GeoShred \(Gerald Peter\)](#)
- [GeoShred with MPE KeyZ using 3D Touch \(Gerald Peter\)](#)



Questions?