

Procedural Music

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Overview

- Develop an algorithm that creates new music
- Takes in a sample
- Retrieve sample attributes
- Use attributes to generate music
- Present new music to the user

New Things

- Read Midi
 - Key signature
 - Chords
- Generate Music
 - Modifiers (i.e. key signature)
- GUI
 - Visualizer
 - settings

New Midi Player

- jMusic's was bad.
 - No play/pause
 - No skipping
 - Lots of playback delay
 - No event updates (song finished)
- Ours is good.

Note/Chord Representation

- Now representing both notes and chords as `int[]`.
 - Allows us to have more than one pitch value in the array for representing chords.
 - Note/chord duration is last value of the array.
 - Allows us to easily give transition probabilities in our table between notes and chords.

Modifiers

- Added the ability to set the tempo.
- Implemented algorithm to detect the key signature of the input.
 - Krumhansl-Schmuckler key-finding algorithm - ~80% accurate.
 - Modifies probability table to include notes from the key signature that may not have been present in the input.
 - User defined transition probability to and from these new notes.

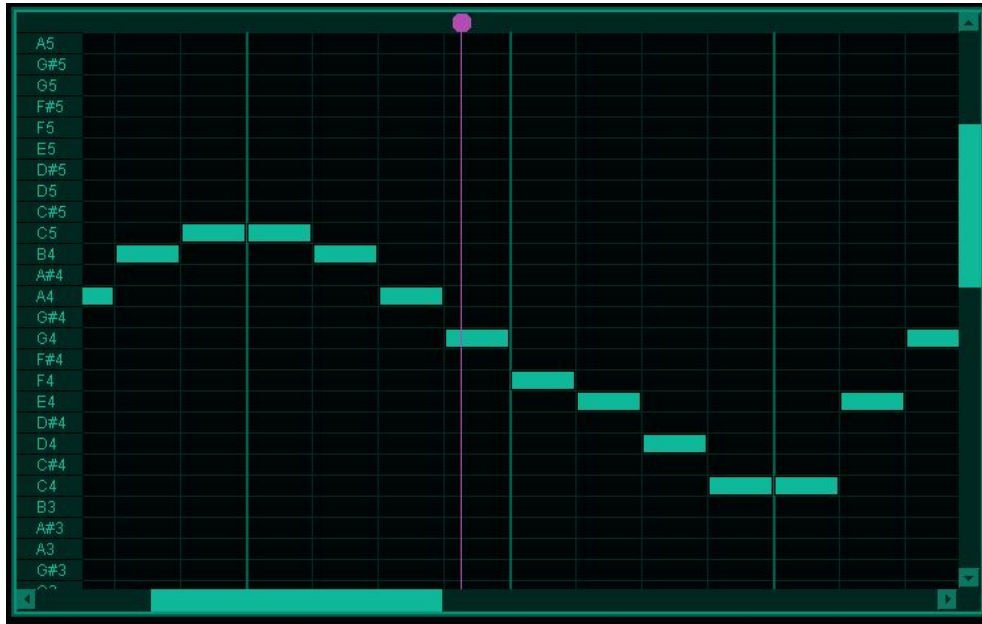
Connecting GUI to Backend

- Settings
- Play/Pause
- Generate/Recycle
- Skip



GUI: Visualizer

- Created custom note visualizer from scratch.
- Turn midi notes into rectangles
 - X: start; Y: pitch; W: duration
- Draw measures & Beats
- Draw persistent
 - Row Headers
 - PlayLine



	Log

Note Count: Instrument:

Tempo

Key Signature Weight %

Generate

Recycle

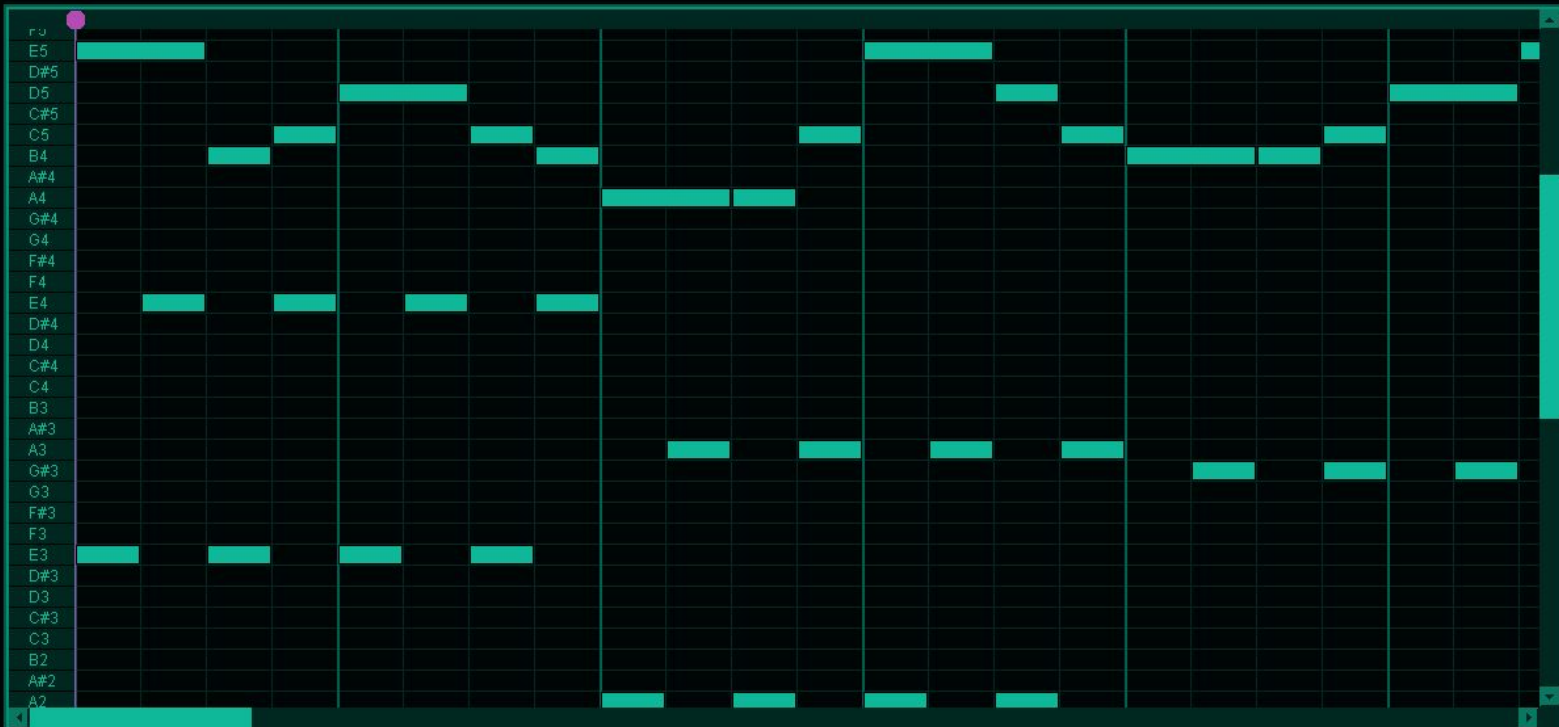
Log

- Loading MIDI...
- MIDI loaded.

Play

Skip Left

Skip Right



Settings

Preferences

Note Count: 100 Instrument: PIANO

Tempo: 100

Key Signature Weight %: 0

Generate

Recycle

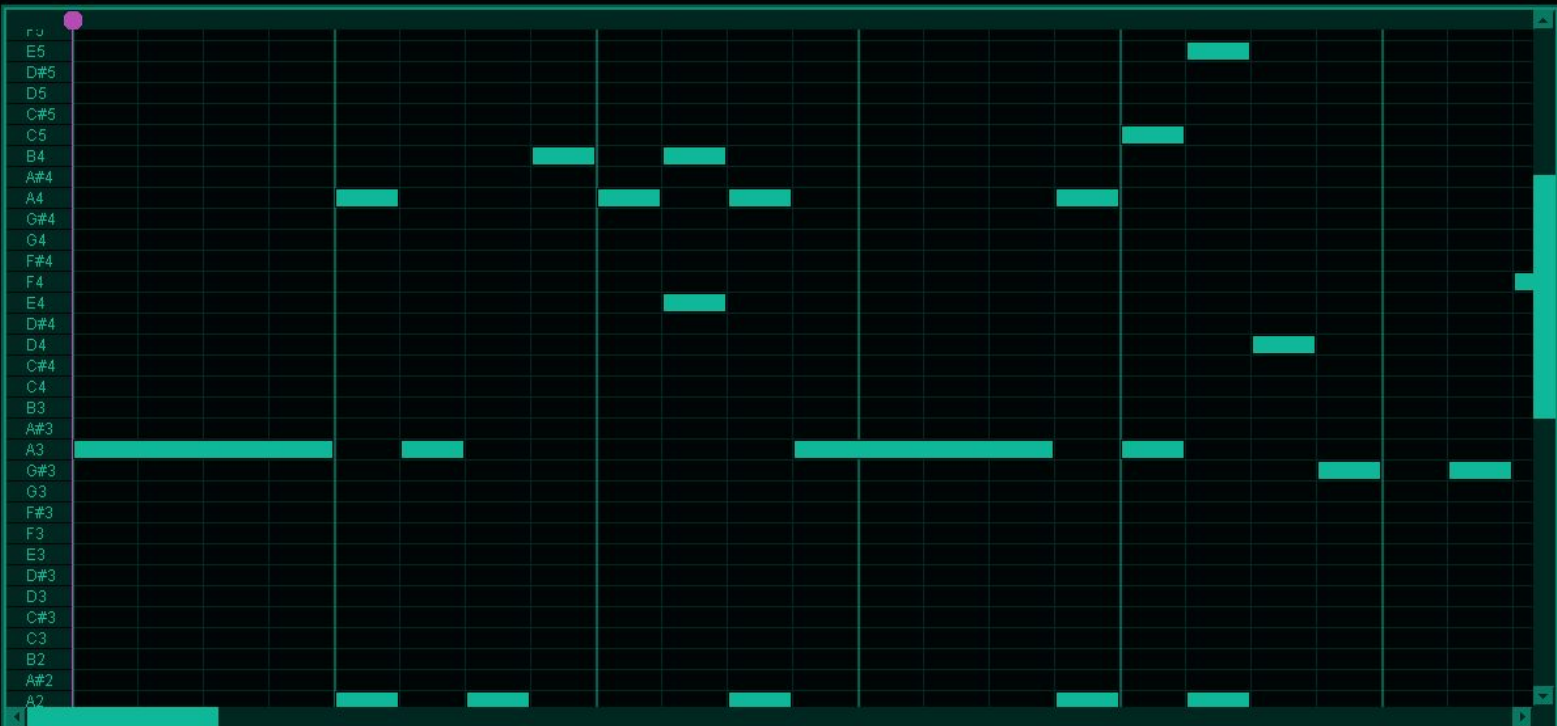
Log

- Loading MIDI...
- MIDI loaded.
- Generating Music...
- Finished.
- Generating Music...
- Finished.

Play

Skip Left

Skip Right



Settings

Preferences

Note Count

100

Instrument

HELICOPTER

Tempo

170

Key Signature Weight %

25

Pause

Skip Left

Skip Right

no

E5

D#5

D5

C#5

C5

B4

A#4

A4

G#4

G4

F#4

F4

E4

D#4

D4

C#4

C4

B3

A#3

A3

G#3

G3

F#3

F3

E3

D#3

D3

C#3

C3

B2

A#2

A2

