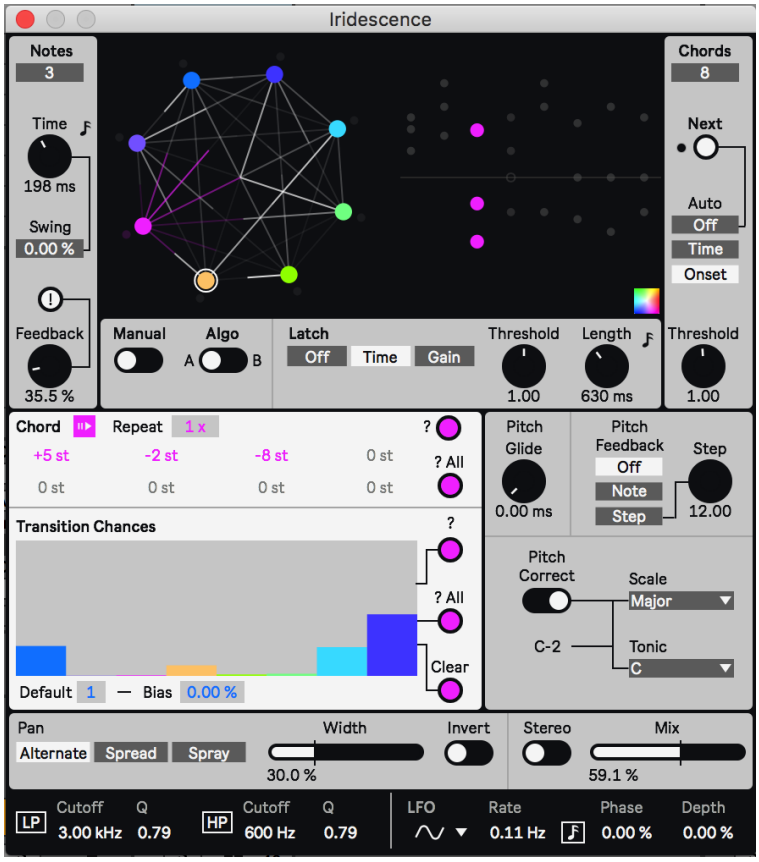
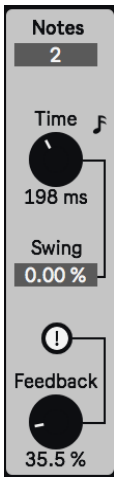
Iridescence User Manual

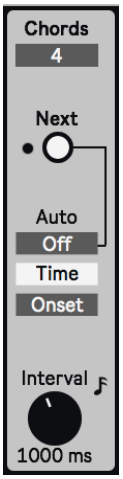


To install:
Unzip the folder and drop the folder called “Iridescence” in this exact location in order for presets to load correctly: *ableton/user library/presets/audio effects/max audio effect*
For best results or if you are having issues, make sure you are using the latest version of max/msp. You do not need to have a license if you are using Live suite. Download the newest version here: https://cycling74.com/downloads and once downloaded go to the ableton Preferences > Library and set the newly downloaded version of max to the one ableton should use. (Also you can try to see if it works fine with your bundled version first).

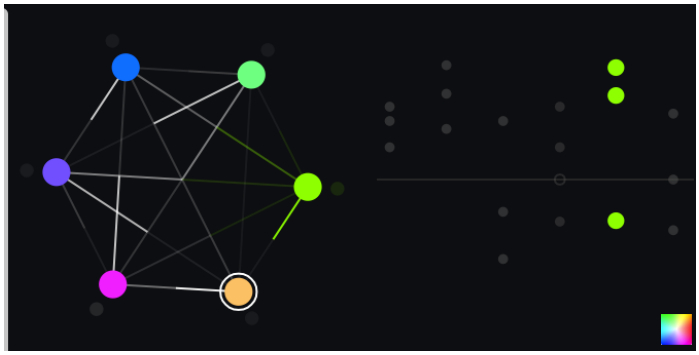
Synopsis
Iridescence is a MaxForLive audio effect. It is a delay effect with arppeggiated note trails via real-time pitch shifting. You can select how many notes are in a “chord” created off of the audio input. Additionally, you can create up to 16 different chords that can transition via a Markov Chain (a probabilistic transition from chord to chord). This device can create beautiful harmonies off of a single note! There are various settings that allow the device to transform from one purpose to another. It is a powerhouse for real-time harmony on a continuous audio source!



This section of the device deal with some core delay settings. At the top we can set the number of **Notes** in the chord. This is how many arppegiated notes that are added to the delay trail. This number does not include the original note played! There for if you select 2, there are actually 3 notes including the original note played. If you select 0 notes then it is only the original note in which case it functions like a standard delay or pitch delay (depending on the other settings…). You can set the delay **Time** in either free milliseconds or tempo **synced** note divisions. **Swing** alters the delay time of alternating notes (this does nothing if the number of Notes is at 0). Setting the swing in positive values delays alternate notes further, while negative values brings them closer to the previous note. At the extreme of 200% the alternate note will play at the same time as the note after it. There is also an option for **feedback** and a **panic button** to clear the feedback.



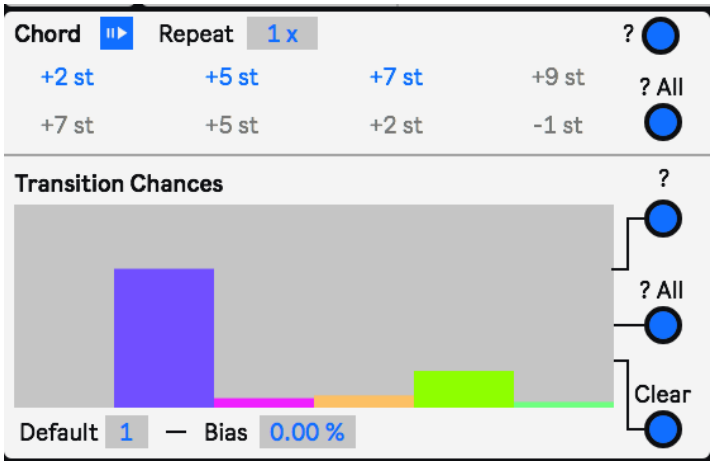
This section manages the chords and their transition trigger. You can set the number of **Chords** at the top. Each chord can have different notes and transition probabilities which I will discuss later. The **Next** button triggers a transition from the current chord to another one. The chord that it will change to depends on the transition probabilities that you set (again, discussed later). There are a couple modes for auto transitioning. The first is triggering the next chord in fixed **Time** intervals, which can be either in milliseconds or tempo **synced** note divisions. The second option is to use transient detection (**Onset**) which triggers a new chord transition everytime a transient is detected. There is a **Threshold** parameter for the transient detector.



The top center of the device has two displays, one for the markov chain (left) and the other for the pitch transpositions for each chord (right). For the markov chain, each colored circle represents a different chord. Each circle has lines coming out of it and pointing to other circles. These lines represent the probability that the chord will transition to the chord that the line is pointing at. The more bold the lines are, the greater the chance of transitioning. The white circle around the circles says that that chord is currently active/being heard. On the right side visual we see circles on either side of a central horizontal line. That line represents the center tuning, or the original tuning of the incoming note (0 steps transposition). The circles represent the different transposed notes of the chords. If the notes are above the line it means they are transposed higher than the original note, and below the line the transposition is lower. We see one of the

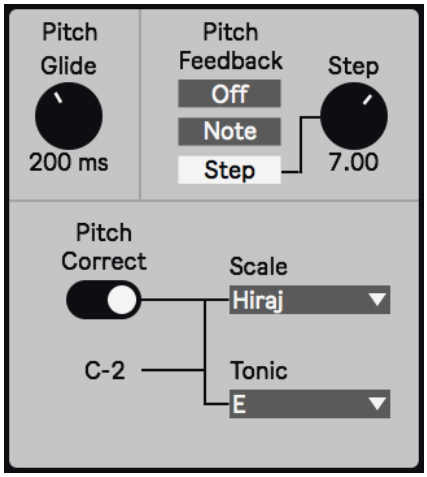
chords (green) is colored in. This means that that chord is currently selected. Clicking circles on either display selects a chord for editing, double-clicking a chord manual activates that chord.

This section has a few functions. One is to switch the device to **Manual** mode. In Manual mode, chord transitioning via the markov chain is disabled, and instead a number box will appear in the markov chain display and the chords can be changed and automated manually. **Algo** switches the real-time pitch shifting algorithm used. Algo A is a frequency domain pitch shifter that is generally a higher quality and preferred choice. However, it is much more CPU consuming than Algo B, which is a time-domain pitch shifter (via overlap-adding of modulated delay lines using a doppler effect). Algo B does has a sort of “grainier” or must stuttered sound, which could be desirable in some situations. The rest of the section to the right is the **Latching** function. Latching works as follows: when a latch is triggered (via a transient detection with a set **Threshold**), the input audio to the delay lines is gated shut after one period of the delay time following the latch trigger. Once gated, the feedback is automatically turned to 100% internally. This creates a sound similar to an actual arppegiator and less of a delay line sound as it “freezes” the sound just after the moment of the latch trigger. This continues until the latch is released, the release may be after a **Time** length or if the **Gain** goes low enough depending on the selected Latch mode.

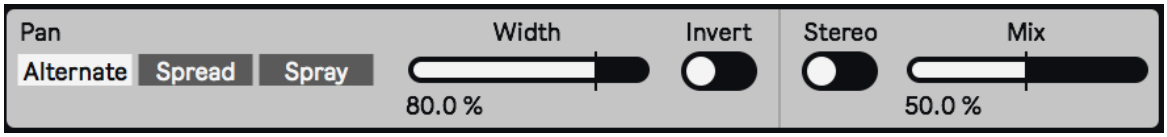


In this section you can set the settings of a selected chord. The colors of many of the parameters will match the color of the currently selected chord to edit. At the top left, there is a button with an arrow-like icon. This is the **Follow** button, if enabled then when a new chord is transitioned to, the selected chord for editing will change to that chord instead of being decoupled. Next to that is a **Repeat** option. If at 1x, then there are no repeats and so if the selected chord is active and a transition is triggered then it will transition. However, if there are repeats then there will be X amount of chord transition triggers before transitioning. Below that are the **note pitch transpositions** in the chord. “0 st”, or Zero steps, is the original pitch of the incoming audio. Plus or minus that are in half-step increments. The top left transposition is the first note in the arppegiated delay trail. From there it goes to the right until the end of the row and then goes to the next column. At the

top right are options to **Randomize** the notes in the selected chord and **All** chords. In the bottom section are the **Transition probability sliders**. Each slider represents the probability that the currently selected chord will transition to another chord associated witht he slider. This is known by the matching colors and order. There is also a slider for the selected chord itself, which is the probability that the selected chord will transition back to itself. Sliders that are higher in value have a higher chance of getting transitioned to. Each chord has its own set of transition probabilities, select different chords to change them respectively! To the right of the sliders are options to **Randomize** the transition probabilities for the selected chord and **All** chords. There is also and option to **Clear** the probabilities for all chords, which sets every chord to a 100% chance of transitioning back to itself. Below the sliders is an optino for setting the **Default** chord. The default chord is the one loaded at startup. If given a **Bias** amount, this will give the default chord a probability to always be transitioned back to regardless of the transition probability sliders! For example, if the bias is set to 100%, then when a chord transition is triggered then it will ALWAYS transition back to the default chord!

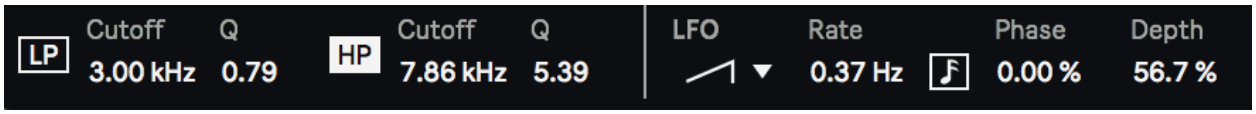


This section has various options dealing with pitch. The **Pitch Glide** sets the amount of gliding for when pitch shifters in the delay trail change their transposition values. **Pitch Feedback** activates another pitch shifter on the feedback network, which causes continuous pitch shifting similar to a conventional pitch delay. Keep in mind activating this will increase CPU. The **Step** option allows for a constant transposition every feedback cycle designated by the Step dial to the right. The **Note** option applies a transposition every feedback cycle based on the transposition for each note in the chord. Below this is a section for **Pitch Correction**. This correction is applied to the pitch shifting transposition values. A rudimentary monophonic pitch detector is used (it is very limited on sound source types and octaves!!!) on the input. Based on the detected pitch and selected **Scale** and **Tonic**, the pitch transpositions for each note in the chord are adjusted in real time to match.



This section has some panning and mix parameters. There are 3 **pan** modes: **Alternate** hard pans each note in the chord alternating left and right, **Spread** pans each note in the chord starting from left to right, **Spray** randomly pans each note. The **Width** controls the depth of the panning (0% is mono) and you can also **Invert** the panning of the notes. If **Stereo** is on, the device will double its delay lines and pitch shifters to process the left and right channels of the audio input separately instead of summing them to mono. Keep in mind doing this will likely

double the CPU! It is not advised to use stereo mode, especially because the device already has a stereofield from the panning mode. However, if you would like to retain the stereofield of the audio input then use Stereo mode. At the far right is a Dry/Wet **mix**.



At the bottom of the device are some biquadratic **filters** and an **LFO** (with a perlin noise option in addition to basic shapes) to modulate their cutoff frequencies. The filters are applied to the input signal just before it enters the delay lines and pitch shifters.

I hope you enjoy this device! Please email me if you have bugs or other issues:
dillonbastan@gmail.com
More: http://dillonbastan.com