PitchFunk

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1   Introduction

1.1   About PitchFunk

Things are about to get very weird.

At the core of it, PitchFunk is a feedback system with a pitch shifter, a filter, a delay line, a gain stage, all of which can be modulated and routed in fun ways.

You can keep things simple, and use it to pitch-shift, detune, harmonize, delay, chorus, flange, phase, simulate sidechaining, do pan-effects, filter sweep... or you can bring a few modules in, and see what happens.

The pitch-shifting is something of a homage to the classic units. Of course, we have much more processing power to play with these days, so we can go a little further; there are a few algorithms in there, and they can be tuned. You should dabble and see what suits your source best.

The real danger comes from the feedback - feeding things into themselves, via other things, all of which are probably going to be moving around. Chaos typically ensues, and you hear some things you've not heard before, and you instinctively press record, and play the results to anyone you can find who'll listen, because it's nuts.

The modulation options include three drawable LFOs (which you can use as step sequencers if the mood takes you), and an envelope follower that can be following the internal or an external signal. And MIDI control for pitch shift, because that means you can play it like a synth.

- Dave Gamble, May 2012

1.2 System Requirements

1.2.1 Windows

PitchFunk works with Windows XP, Vista and Windows 7, 32bit and 64bit. VST and VST3 are supported in both 32bit and 64bit hosts. RTAS is supported in 32bit ProTools 7 or newer.

1.2.2 Mac OS

PitchFunk requires OSX 10.4.11 or better, on G4, G5 or Intel mac. VST, VST3 and AU are supported in both 32bit and 64bit hosts. RTAS is supported in 32bit ProTools 7 or newer.

1.3 Installation and Setup

1.3.1 How to Install on Windows

You need two files to install; the plugin installer and the license file. Both are available in your User Area. If you're using a demo, download the installer from the site, and use the form to have your license file emailed to you.
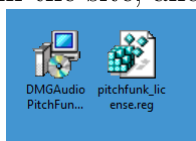
Double-click license.reg, and this box will open:
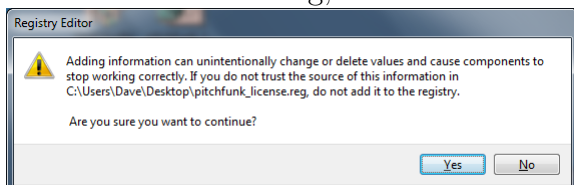
Click "Yes" and the license is installed. Now double-click the .zip file which contains the installer. Double-click the installer; it will look like this:

Click "next" (changing any options if you need to), and PitchFunk is installed! Reload your host, and enjoy!

1.3.2   How to Install on OS X
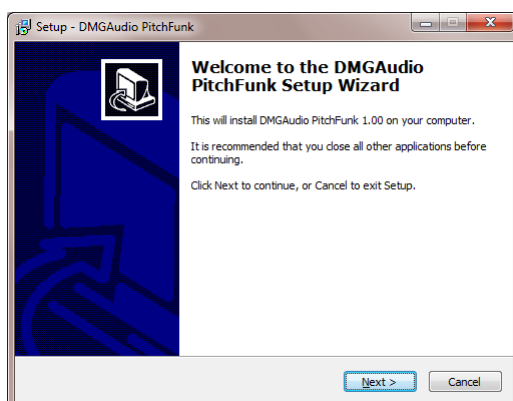
You need to download both the installer and the license file. Both are available in your user area. If you're using a demo, download the installer from the site, and use the form to get your license file emailed to you.
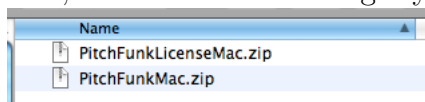
If you are using Safari, one or both of these files may be automatically unzipped for you. If not, double-click them to decompress them, so you get this:
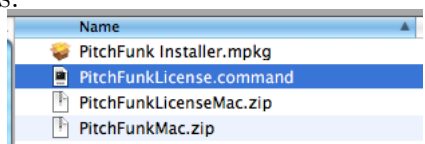
Double-click "PitchFunkLicense.command" to install the license. The license will install, and you'll get the following message to confirm:

Now double-click the installer, and it will launch. It looks like this:
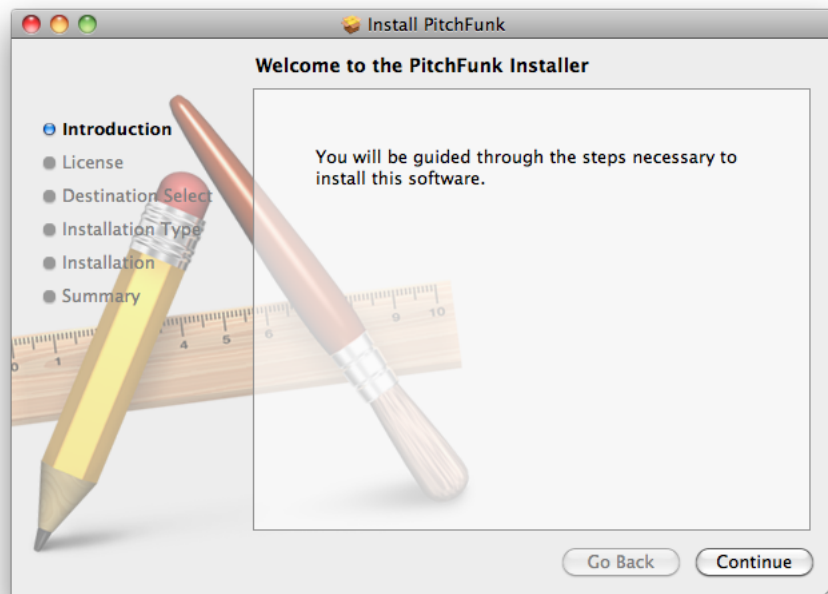
Click through until it installs, and everything is set! Now relaunch your host and enjoy!

2   PitchFunk UI and Controls

2.1   The Matrix
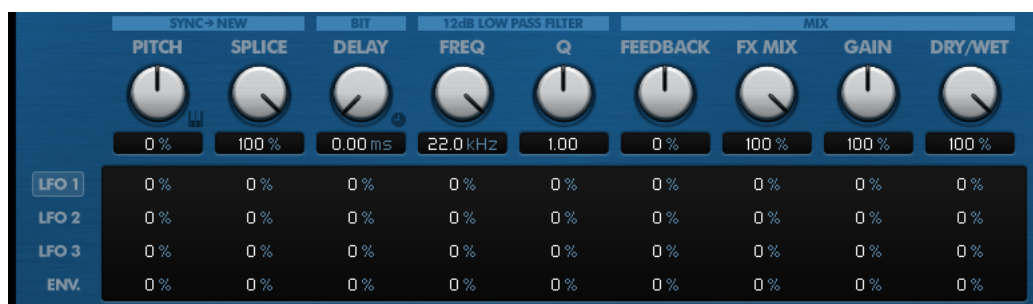
All the main controls are here. Each control has a knob, a textbox, and a column of four modulation amounts below it. You move the knob, it adjusts the control. You move the modulation amount, and it determines how much that modulation source can move the knob. It's all displayed onscreen too.

We'll get to that.

2.1.1   Pitch and Splice

Pitch is your detune amount. Audio goes in, audio comes out higher or lower in pitch. Kinda.

Pitch is displayed in either cents or as a percentage. Shift+Apple/Control click to toggle. There's a preference to change your default.

You have two octaves of range in both directions.

If you engage PitchLock (the little keyboard icon), the display is a semitone readout, and all shifts are quantized to equal-temperament semitones.

At the top, it currently reads "Sync->New". There are currently ten of these algorithms. There are five algorithms forward (->) and each has a corresponding reverse (<-) version, whereby the audio is reversed while in playback.

Sync New uses a modern algorithm to determine the pitch of what's coming in. Splice allows you to set the smoothness of the shift; bringing it down will get you some crunchy glitches. There's a preference that lets you pick a deeper range for pitch detection, but at the cost of some extra CPU.

Sync Old uses a classic algorithm to determine the pitch. It gets it wrong in an interesting way.

Async doesn't follow the pitch at all. The Splice control sets the size of each splice. It's a lot like granular synthesis, and the Splice control has a wide range, to let you go nuts with it.

Async Geo is a more modern, artefact ridden algorithm that sounds like cheap pitch-shift plugins, because sometimes you want that. You'll hear it buzz and beat at some settings.

SemiSync is a hybrid between Sync and Async. It's odd, and has an unusual sound, that can be quite smooth, or quite weird, depending on the source material.

2.1.2   Delay

Delay knob sets the delay time. The clock icon allows you to pick a synched delay length that matches your session's tempo.

At the top, you can pick an algorithm: Bit is in the style of an old digital delay, Crunchy is a simple digital delay, which modulates, aliases,

and dynamically filters the top-end, Modern is a modern delay line that sounds good.

There's a control on the Panel that lets you slow down how fast the delay responds to modulation, which you use to make it sound more tape-like.

2.1.3   Filter

Frequency and Q do what you'd expect, and you can pick a filter shape (low-pass, high-pass, band-pass, notch) of varying orders of steepness using the menu at the top.

2.1.4   Mix

Feedback determines how much output gets mixed back in with the input. What exactly this does is a function of the topology, which we'll talk about later. For now, feedback can be positive or negative, and up to 100 percent, which will generally cause things to explode.

FX Mix allows you to mix (and modulate) between different points in the topology to derive the output.

The Gain control is a modulatable gain stage that can be moved around in the circuit. You can use it to make the output gain bounce, or to modulate the feedback, or anything really.

Dry/Wet is a mix right at the end of the processing chain, allowing you to soft-bypass the plugin.

2.1.5   Stereo, L&R and M&S

When you're in L&R or M&S mode, you have independent control over each channel. You'll know which mode you're in, because the icons above will appear to the left of the matrix.

The current channel is framed, and has a little arrow. That arrow allows you to copy all the settings onscreen to the other channel. Click the channels to switch between control sets.
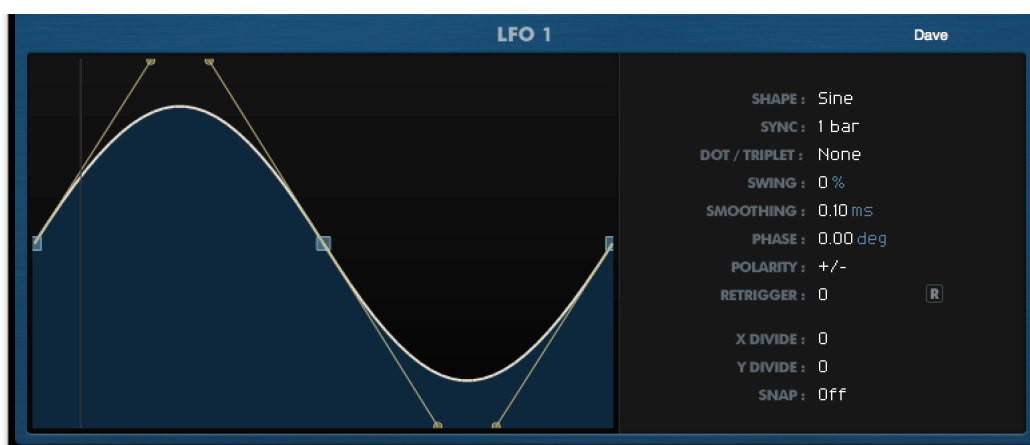
2.1.6   Mod

When you're using the modulation matrix under the knobs to modulate controls, the resultant knob position is overlaid on the knobs, so you can see what's going on at all times. These circular sections stretch from where the knob handle is, to where the knob handle has effectively been modulated to.

2.2   Modulation

You can freely draw shapes in here to use as modulation sources. Double-click to add a point, shift-click a point to remove it, or right-click to open a menu to allow you to copy, paste, or linearize part/all of the shape.

The menu on the right allows you to adjust how the shape is interpreted. The Shape menu allows you to pick some common shapes, including "Continuous Random" which will regenerate the shape every time the LFO starts, and "Continuous Random Static", which picks a single value, for sample-and-hold effects. Adjusting the graph will set the type to "Custom".

Synch and Dot/Triplet allow you to specify the duration of the LFO, synched to the session's tempo. Swing allows you to set the LFO to have swing; once round it plays fast, the second time slow, and the duration of the two will equal twice the sync time.

Smoothing allows you to smooth the LFO shape at source, to round-off corners of the shape without having to adjust the graph.

The Phase control allows you to set the relative phase of the LFO relative to bar/beat starts in the host clock.

Polarity gives you a quick way to invert the effect of the LFO.

Retrigger allows you to choose a source to retrigger the LFO independent of its phase in the session. You can select another LFO rising/falling to cause a trigger, or map a MIDI key press/release. The "R" button to the right allows you to manually retrigger the LFO.

X/Y Divide and Snap allow you to display a grid under the graph and have points jump to it, for quick editing.
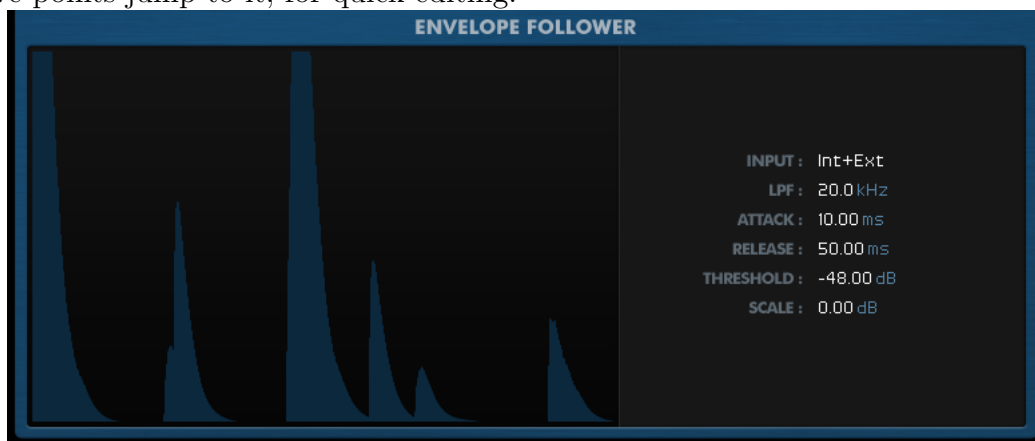
The Envelope Follower follows an input source. The bottom of the graph is the lowest threshold, corresponding to no modulation, and the top corresponds to maximum modulation.

The Input option allows you to pick either the internal input, an external sidechain, or a mix of the two as the follower input.

The LPF allows you to filter the signal, for instance to respond only to bass.

Attack and Release set the timings for the follower, so you can have it respond with a tail, or a slow start.

The threshold determines at what point the follower registers a signal. Raise this to stop the follower responding to small signals, or lower it to make the follower more jumpy.

The Scale is an overall gain on the envelope follower, and increases the size of the peaks in the follower graph.

2.3 The Panel
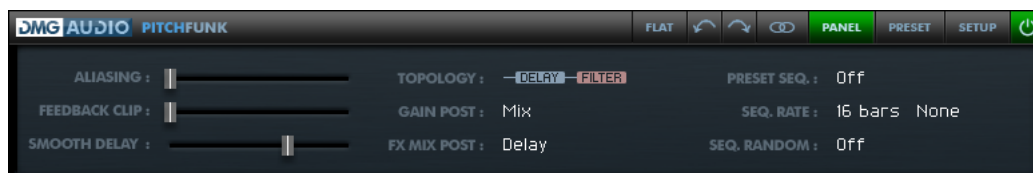
The Panel is split into three sections:

2.3.1 Faders

Aliasing allows you to degrade the pitchshifting algorithms by reintroducing digital aliasing.

Feedback Clip distorts the signal on feedback, to prevent overloads. By default this is fully set, but when disengaged, this can create extremely loud signals that will make things explode and/or catch on fire.

Smooth Delay will smooth the update rate of delay modulation, to produce slow tape-like delay effects.

2.3.2 Topology

The pitch shifter always has an input signal which is a mix of the input and the feedback signal. Changing Topology allows you to set the feedback to be post delay, post filter, change the delay/filter order, or to run the delay and filter in parallel.

Gain Post allows you to position the Gain stage from a variety of options in the circuit.

FX Mix Post allows you to use the FX Mix control to mix between the Shifter output and either the Delay or the Filter output. The consequences of this depend on the topology.

2.3.3 Preset Sequencer

You can set up a bunch of presets in a bank, and have PitchFunk play through them following your track. Use the Rate to set how often PitchFunk should change, and use Random to randomise the playback order, rather than play through in order. Engage Preset Seq, and off it goes!

2.4 Top bar

The bar at the top of the UI contains controls to allow you to configure the behaviour of PitchFunk.

2.4.1 Flat

Resets all controls onscreen to reasonable values. Like a panic button.

2.4.2   Undo and Redo

This section contains controls to Undo/Redo changes (history is saved until you close the session).

2.4.3   Stereo Mode

This menu allows you to choose between Stereo mode, where both channels are processed identically, and L&R mode where you can process Left and Right independently, or M&S mode, which allows you to process Mid and Side independently.

2.4.4   Panel

This opens the Panel, which has extra controls for fine adjustments.

2.4.5   Preset

This button will open the Preset pane, to allow you to select, import and export presets.
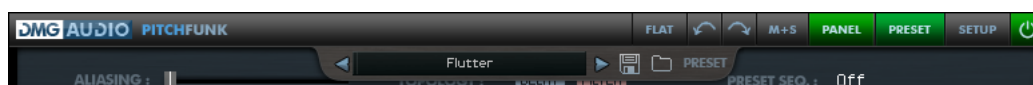
2.4.6   Setup

This button opens/closes the floating Setup pane.

2.4.7   Enable

When this button is green, PitchFunk is engaged. Use this button to quickly bypass/re-enable the processing.

2.5   Presets

The preset bar slides down over the window when "PRESET" is selected on the top bar.

To the left is the preset selection menu. The arrows either side let you select the next preset with a single click. Right-click the preset name to enter a new one.

Presets are arranged in banks, which live on your harddrive as folders of presets. If you switch banks (by selecting a preset from a new menu), the new bank needs to be loaded, and unsaved changes will be lost, overwritten by the new set of presets.

Next to this are the save and load buttons, and the type selector. Click the word "PRESET" on the far-right to change it to "BANK", and back again. When you're loading or saving presets, you'll export or import just the settings on the UI. Loading or saving Banks will replace all your current settings, or save all the changes you've made to the current bank, ready to save or share!

3 Preferences and Options

Click the setup button on the top-right of the top bar and the Setup window will open, allowing you to adjust your preferences.

Preferences apply to all instances and are saved globally.

3.1 Preferences
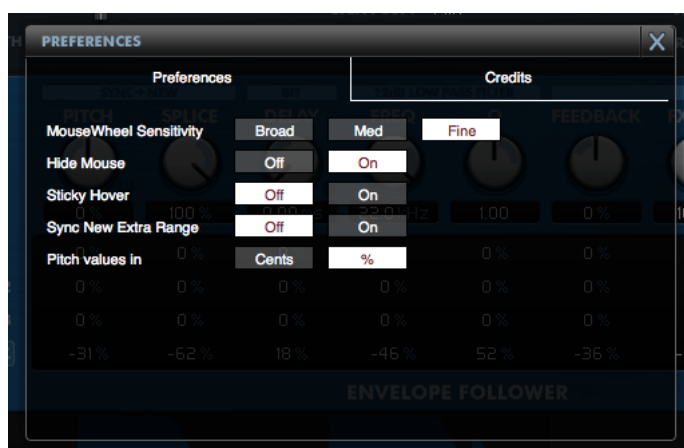
3.1.1 Mouse Wheel Sensitivity

Use this to calibrate how big an adjustment a single "click" of the mouse wheel makes to a control.

3.1.2 Hide Mouse

When "On" the mouse will be hidden during drag operations on the UI, to minimise distraction.

3.1.3 Sticky Hover

When enabled, moving the mouse over the name of an LFO, or the Envelope Follower lfo will instantly open its page without you needing to click.
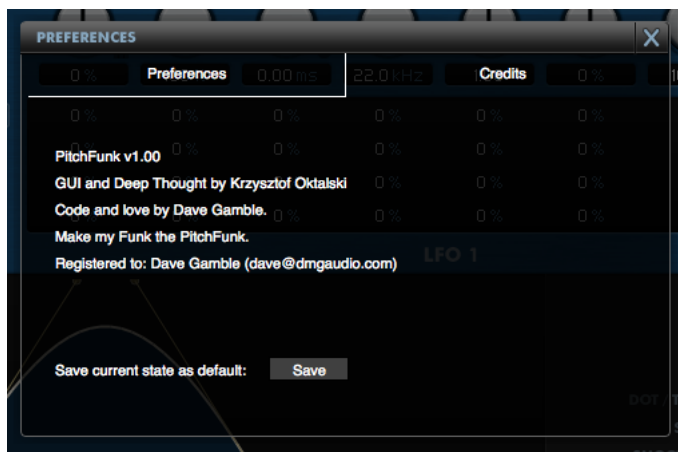
3.1.4   Sync New Extra Range

When enabled, this increases the pitch-detection range of the Sync New algorithm, but at the cost of extra CPU.

3.1.5   Pitch values in

Use this to choose whether you prefer the Pitch Shift amount displayed as a percentage or in cents.

3.2   Credits Page

This page shows the version number, credits, and registration details for PitchFunk.

Also, the "Save current state as default" button allows you to configure how PitchFunk starts up by default. To use it, instantiate a new PitchFunk, and set it up how you want PitchFunk to open in future (pick UI size, preset, range, etc). Click "Setup", to open the Setup window, select Credits, and now click "Save current state as default". From now on, new instances of PitchFunk will open with the settings you just saved.

To revert to factory settings, navigate to:
- Mac: /Users/$<username>$/Library/Application Support/DMGAudio/PitchFunk
- Windows: C:\Program Files\DMGAudio\PitchFunk
and remove "Default Bank.pfb".

4 Troubleshooting

4.1 Get in touch

If you run into trouble, get in touch! We're here to help, after all!

You can visit this page: http://dmgaudio.com/index.php?_view=home.contact

Or you can just email me: dave@dmgaudio.com