

Audio Stretching in Sound Forge Pro

Craig Anderton

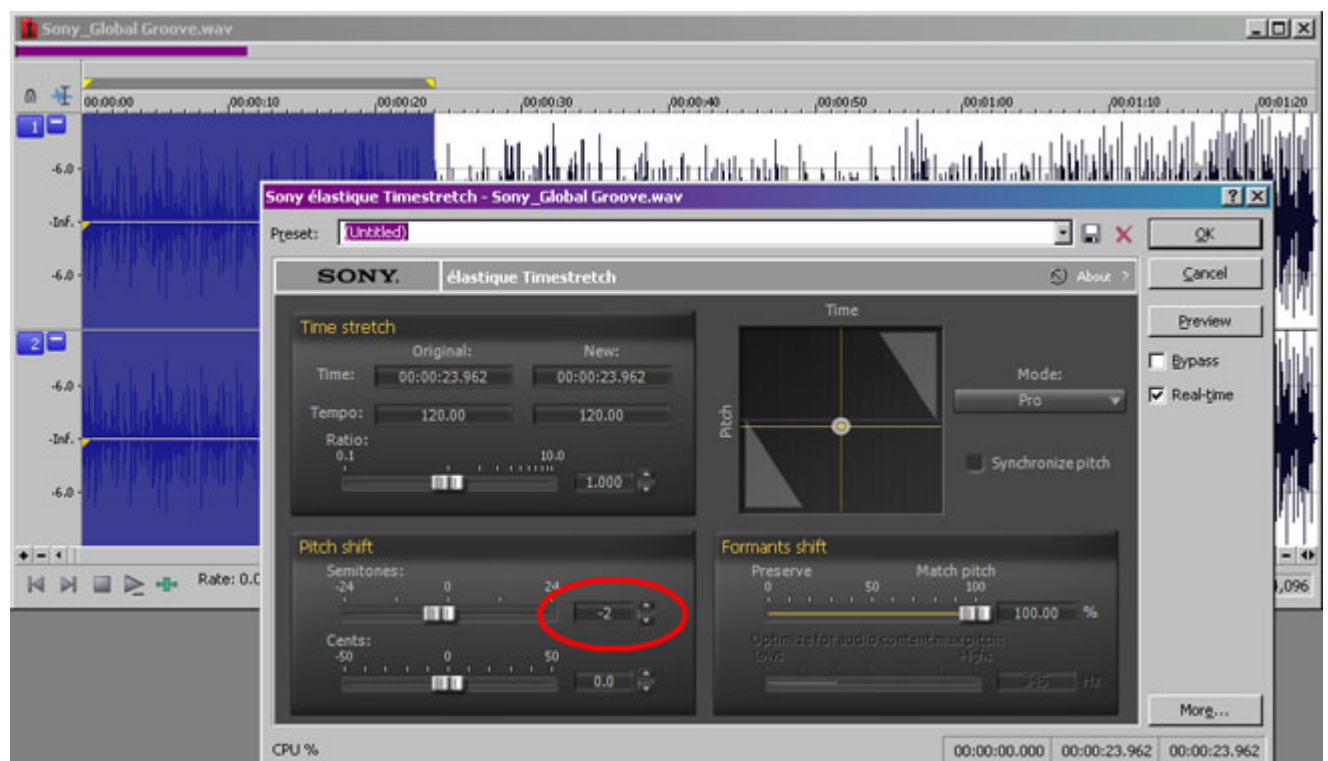
The latest version of Sound Forge Pro offers outstanding pitch- and time-stretching. Being able to control pitch and timing independently opens up all kinds of creative possibilities, as well as solves problems. If what's supposed to be a 30-second radio spot clocks in at 32 seconds, no problem—use *time* compression (as opposed to dynamic range compression) to make it hit 30 seconds exactly. DJs can use time compression to match the tempo of two songs with different tempos, or an entire track can be transposed up a semitone to match a singer's voice.

Sound Forge Pro 10 offers three stretching/transposition options; of these, the latest and greatest is the new (and very high quality) "élastique" pitch shift algorithm from zPlane, a company that specializes in stretching algorithm. Stretching is difficult to do without altering timbre or introducing artifacts, but Sound Forge Pro 10 now provides some of the most effective and transparent stretching algorithms in pro audio. Let's look at some ways you can take advantage of this new feature.

Transposition and Modulation

Although most people think of stretching algorithms in terms of altering time, élastique can also transpose pitch. Unlike many algorithms that give acceptable results shifting pitch up but don't do well with shifting down, élastique sounds good going either way (within reason, of course).

[Audio Example 1](#) is an excerpt from a piece of music done with Sony's Global Groove sound library. Suppose you want to start off transposed *down* two semitones, so that when the main theme repeats, it modulates up two semitones. This isn't hard to do at all. First, make sure the algorithm is in Pro mode. Then, select the region you want to transpose downward, and go *Process > Time > élastique Timestretch* and make the desired edits (Fig. 1).



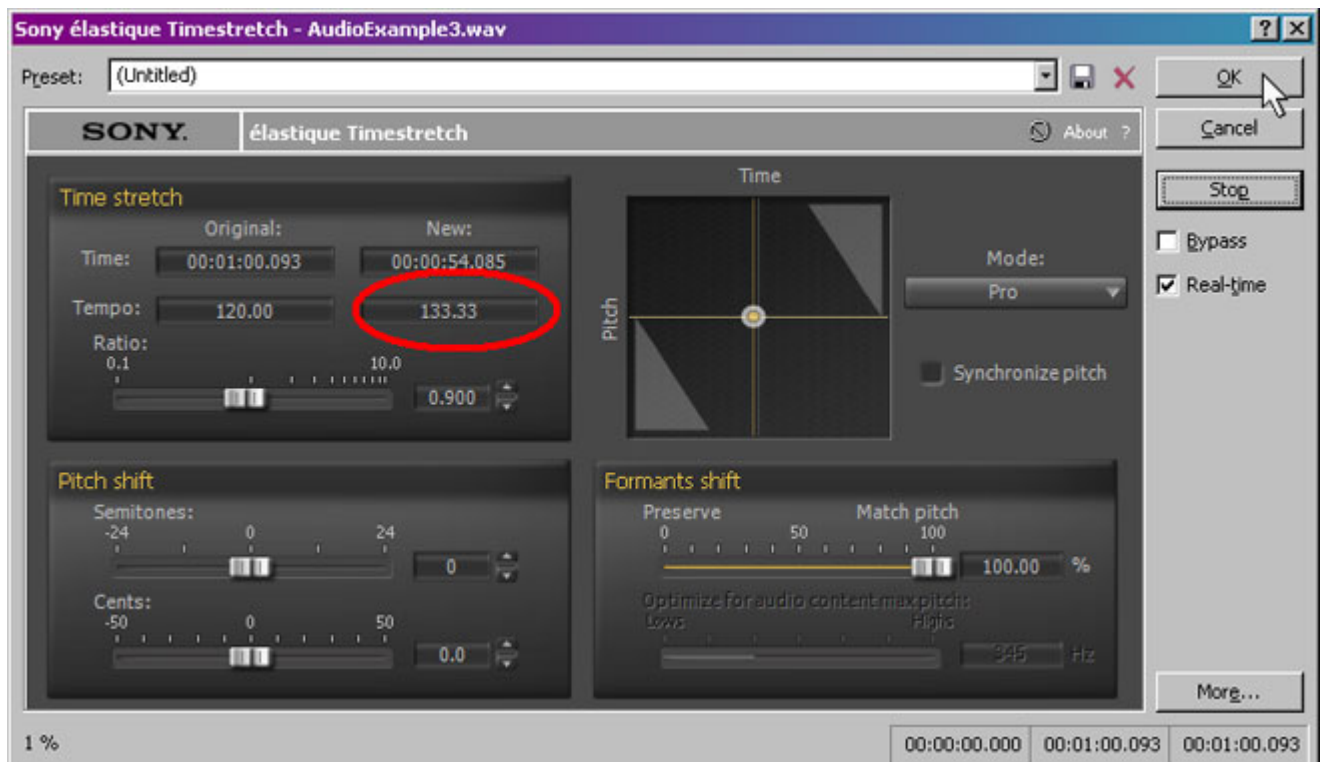
The élastique algorithm transposes pitch as well as stretches time. Here, part of a file is being shifted down 2 semitones.

Make sure the Time Stretch ratio is 1.000, as we don't want to change tempo. The only edit you need to make is to change Pitch Shift to -2 semitones. Listen to [Audio Example 2](#), and you'll hear the tune modulate up about 24 seconds in—with no discernible change in sound quality.

Beat-Matching for DJ Sets

Now let's throw a real challenge at the *élastique* algorithms. [Audio Example 3](#) is a piece of music put together using Sony's *Caliente* sound library, with a tempo of 120 BPM. Suppose a DJ wants to slide this into a set that's churning along at 133.33 BPM, but doesn't want to alter the original file's pitch. That's quite a stretch (no pun intended), but *élastique* is up to the task.

Again using Pro mode, select the file, then go *Process > Time > élastique Timestretch*. In the Time Stretch section, simply enter 133.33 for the New Tempo (Fig. 2).



The élastique time-stretching algorithm makes it easy to stretch tempo.

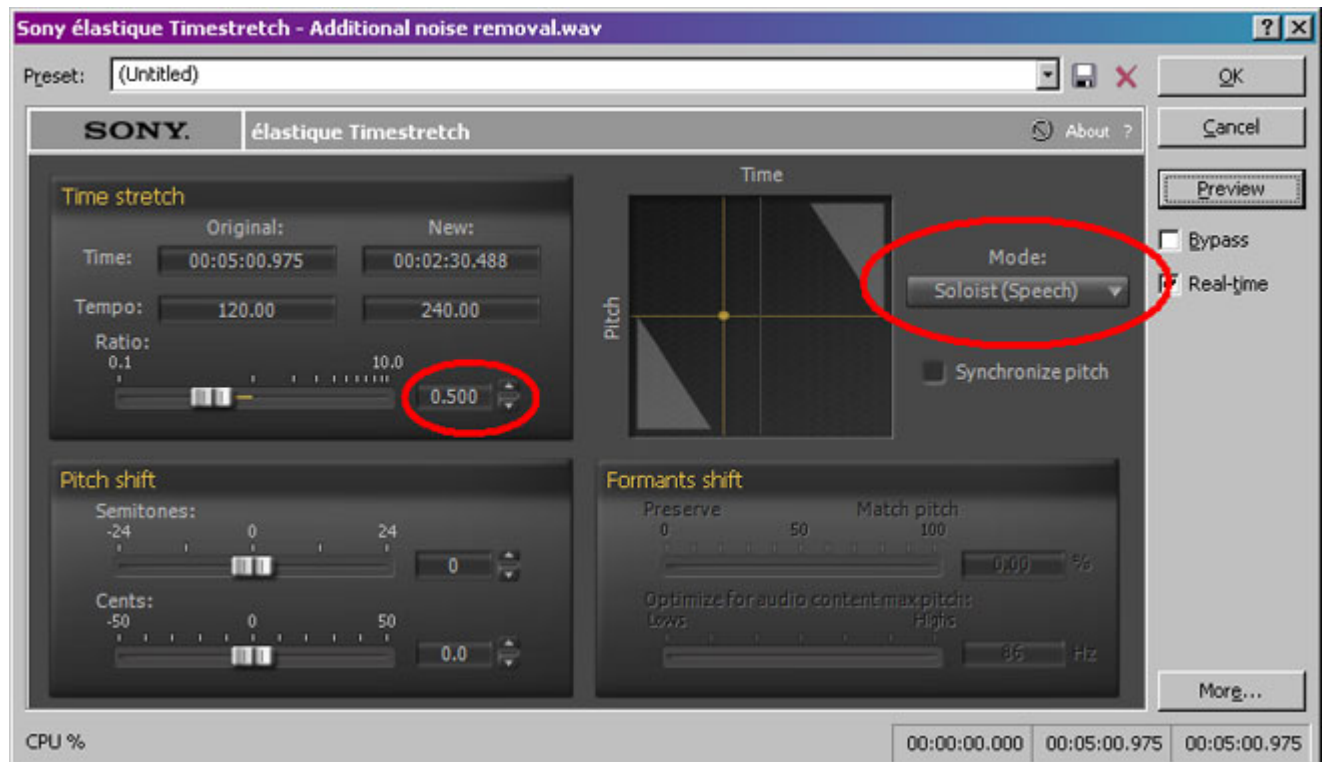
Click on Preview to amaze yourself with the stretched sound quality (as someone who's used stretching algorithms for years, I have to say it's exceptionally good), then click on OK to apply the changes to the file.

[Audio Example 4](#) is the time-stretched version... take a listen, because it's impressive how much you can stretch tempo and still have excellent fidelity.

A Really Annoying Application

You know how a narrator's disclaimer goes by at supersonic speed at the end of a commercial? *élastique* can do that too. [Audio Example 5](#) is some narration for a webinar on mastering; but listen to what happens when we speed it up by a factor of two (!) in [Audio Example 6](#).

To speed up or slow down narration, choose the Soloist (Speech) mode for best results (Fig. 3).



élastique includes a special mode for dealing with speech and narration.

Hopefully you'll never speed up narration this much in your work, but if you do, at least you know it will sound reasonably good!

By the way, we've only scratched the surface of what élastique can do... stay tuned for future articles that go deeper into the subject of stretching.

Craig Anderton is Editor-in-Chief of www.harmony-central.com and Executive Editor of EQ magazine. He's played on, produced, or engineered over 20 major label releases, and is currently working on a classical guitar CD by Margarita Escarpa. Photo by Paul Haggard.