flangetoolbox

Flanger — Time delay FX processing.

Syntax

\[ y = \text{flangetoolbox} \left( \text{choice}, \text{fs}, r, v, y \right) \]

Description

Flanging is a feed-forward filter which utilises a low frequency oscillator (LFO) in order to delay a given audio signal. The flanging process relies on input values for frequency samples, rate (for the speed) and variation (for the depth) as well as an audio signal in a column vector. This particular filter also allows the user a choice of wave types by which to delay the signal, which can be used to create unique audio effects.

\[ y = \text{flangetoolbox} \left( \text{choice}, \text{fs}, r, v, y \right) \] produces a flanged signal as its output. There are no default values for any of the input arguments, and as such they must be determined by the user.

Various waveforms can be used to modulate the wave by selecting a choice value between 1-3, where;

\[ y = \text{flangetoolbox} \left( 1, \text{fs}, r, v, y \right) \] uses the cos function to modulate the input.

\[ y = \text{flangetoolbox} \left( 2, \text{fs}, r, v, y \right) \] uses the sawtooth function to modulate the input.

\[ y = \text{flangetoolbox} \left( 3, \text{fs}, r, v, y \right) \] uses the square function to modulate the input.

Input values for \( r \) and \( v \) must range between 1 and 5.

**Note** For a conventional flange sound, the choice value should be set to 1.

Examples

Create a conventional flange effect with a large sweep;

\[ y = \text{flangetoolbox} \left( 1, 44100, 2, 5, y \right) \]
Listen to results:

```matlab
sound (y, 44100)
```

**Algorithms**

This function uses an original algorithm by Stephen G. McGovern.[1]

`flangetoolbox` also uses the sawtooth, cos and square functions.

**Diagnostics**

If r and v are not within the ranges of 1-5, the function will not produce a flange effect.

Extremely low sample rates may result in the function not performing at its best. For best results, use sample rates above 28000 Hz.

**References**

Accessed 20/04/11.

**See Also**

`wavread`, `sound`, `cos`, `square`, `sawtooth`, `round`, `max`, `zeros`, `abs`. 