Pd Spectral Toolkit

Spectral

- binindex~ · ramp from 0 to blocksize-1 during each signal block
- binmax~ · maximum bin value and associated data per block
- binmin~ · minimum bin value and associated data per block
- binmix~ · mixes in 2 values for matching in 1 values, zeroes others
- binmonitor~ · samples a bin and outputs a float once per block
- binsort~ · sorts spectral data in ascending or descending order
- bintrim~ · zeroes bin values outside of a specified range
- blocksmooth~ · replaces zeroes with adjacent non-zeroes in each block
- freqsieve~ · assigns frequncies and magnitudes to proper bins
- fundfreq~ · most prominent fundamental frequency per block
- harmprod~ · harmonic product spectrum
- magtrim~ · zeroes bin values outside of a specified magnitude range
- oscbank~ · oscillator bank for spectral resynthesis
- pafft~ · windowed phase aligned real FFT
- paifft~ · windowed normalized phase aligned real IFFT
- partconv~ · partitioned convolution using cartesian coordinates
- peaks~ · finds spectral peaks and zeroes all other data
- phaseaccum~ · running phase sums for each bin per block
- phasedelta~ · phase deviation for each bin per block
- piwrap~ · wraps a signal between -pi and pi
- rotate~ · rotates samples within each signal block
- valleys~ · finds spectral valleys and zeroes other data
- windower · writes various window functions into arrays
- winfft~ · windowed real FFT
- winifft~ · windowed normalized real IFFT

Conversion

- amptodb~ · amplitude to dB-FS decibels
- amptomag~ · amplitude to magnitude
- cartoamp~ · cartesian coordinates to amplitude
- cartodb~ · cartesian coordinates dB-FS decibels
- cartofreq~ · cartesian coordinates to magnitude and frequency pairs
- cartomag~ · cartesian coordinates to magnitude
- cartophase~ · cartesian coordinates to phase
- cartopolar~ · cartesian coordinates to polar coordinates
- ctltosig~ · control range to signal range
- dbtoamp~ · dB-FS decibels to amplitude
- dbtomag~ · dB-FS decibels to magnitude
- degtorad~ · degrees to radians
- degtoturn~ · degrees to turns
- freqtocar~ · magnitude and frequency pairs to cartesian coordinates
- freqtophase~ · frequency to phase
- freqtopolar~ · magnitude and frequency pairs to polar coordinates
- magtoamp~ · magnitude to amplitude
- magtodb~ · magnitude to dB-FS decibels
- phasetofreq~ · phase to frequency
- polartocar~ · polar coordinates to cartesian coordinates
- polartofreq~ · polar coordinates to magnitude and frequency pairs
- radtodeg~ · radians to degrees
- radtoturn~ · radians to turns
- sigtoctl~ · signal range to control range
- turntodeg~ · turns to degrees
- turntorad~ · turns to radians

Operator

- !~ · not
- %~ · modulo
- cmplxabs~ · complex absolute value
- cmplxadd~ · complex addition
- cmplxdiv~ · complex division
- cmplxmult~ · complex multiplication
- cmplxsqrt~ · complex square root
- cmplxsub~ · complex subtraction
- recip~ · reciprocal
- rounder~ · round to specific precision
- trunc~ · truncate to specific precision

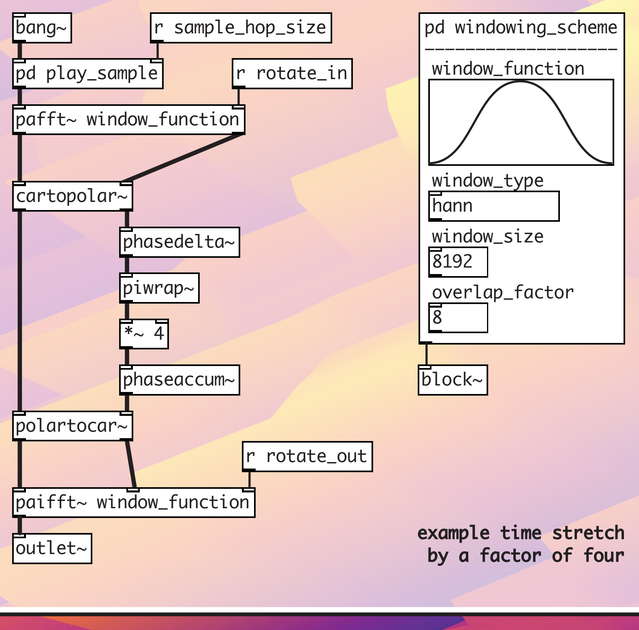
Comparison

- !&&~ · not and
- !=~ · not equal
- !||~ · not or
- &&~ · and
- <=~ · less than or equal
- <~ · less than
- ==~ · equal
- >=~ · greater than or equal
- >~ · greater than
- ||~ · or

Miscellaneous

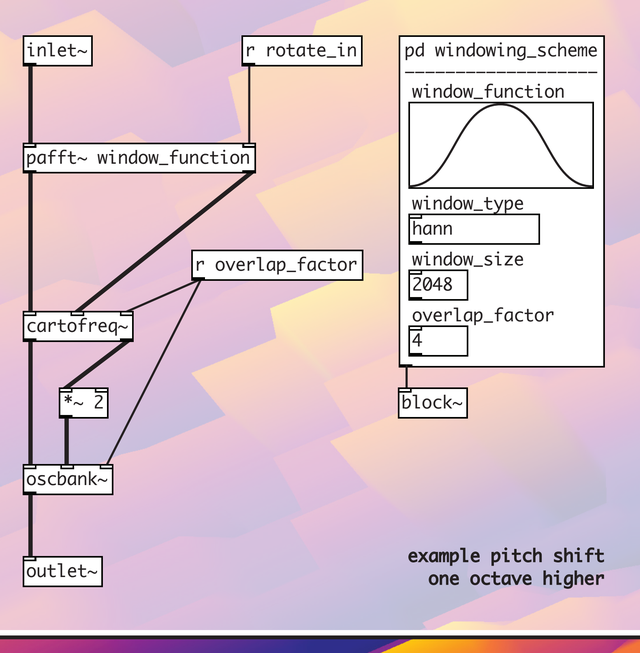
- bitsafe~ · fixes inf and nan values
- countwrap · bang driven wrapping counter
- dspbang~ · bang when dsp turns on or recompiles
- monitor~ · signal to float sampled every 20 msec
- rgbtable · outputs RGB values based on input value
- scale~ · scales values from one range to another
- softclip~ · soft clipping waveshaper
- tabindex~ · writes table values at index location
- terminal · command line shell interface

Phase Vocoder



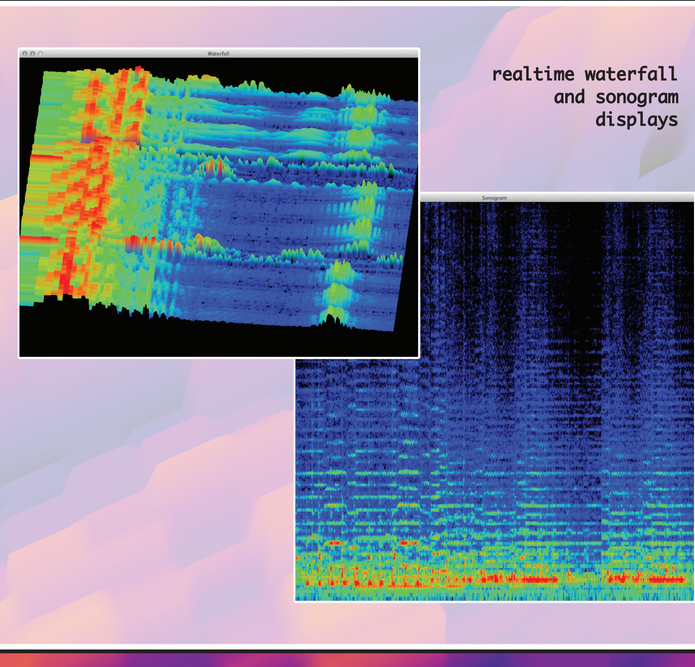
example time stretch
by a factor of four

Oscillator Bank



example pitch shift
one octave higher

Visualization



realtime waterfall
and sonogram
displays

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http://www.cooperbaker.com/pd-spectral-toolkit