

List of scipy.signal scripts:

Folder: Synthesis_and_freq_response

Filter synthesis general: Examples of filter synthesis using the matlab-like filter design functions.

Example filtering effect: Filter synthesis and application of the filter to the separation of a pure tone (1 kHz) from a disturbing tone (2 kHz) and random noise.

`Filter_synthesis_with_iirdesign`. Use of the alternative function “`iirdesign`” to perform filter synthesis.

Bessel vs butterworth. Comparison of a butterworth filter with a Bessel filter with similar selectivity. The filter are compared in terms of group delay and step response

Folder: Biquad_decompos

`biquad_butter`: Butterworth Filter design and expression of the filter response as a product of biquads. The script produce the biquad coefficients in terms of ω_0 and Q . Note that no zero are present.

`biquad_ellip`: Elliptical Filter design and expression of the filter response as a product of biquads. The script produce the biquad coefficients in terms of ω_0 and Q . Note that pure imaginary zeros are present.

Folder: discrete_time

generic 1st order H di z: Simulation (frequency and step response) of a generic first order discrete time $H(z)$ transfer function.

euler 1st order. Approximation of the first order low pass filter with the Euler forward approximation. Calculation of the $H(z)$ coefficient is done explicitly.

test bilinear 2d order: Approximation of second order, continuous time low pass function by means of the bilinear transform. It is possible to introduce pre-warping.

test_cont2discret_1st Example of use of function “`cont2discrete`” to obtain an equivalent discrete-time model from a first order continuous-time transfer function. Various methods (e.g. Euler, forward and backward, bilinear, zero hold) can be chosen.

test_cont2discrete_2nd Same as previous but for a second order system.