1 Matlab Help on filter

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 FILTER One-dimensional digital filter.
    Y = FILTER(B,A,X) filters the data in vector X with the
    filter described by vectors A and B to create the filtered
    data Y.  The filter is a "Direct Form II Transposed"
    implementation of the standard difference equation:

    a(1)*y(n) = b(1)*x(n) + b(2)*x(n-1) + ... + b(nb+1)*x(n-nb)
                          - a(2)*y(n-1) - ... - a(na+1)*y(n-na)

    If a(1) is not equal to 1, FILTER normalizes the filter
    coefficients by a(1).

    FILTER always operates along the first non-singleton dimension,
    namely dimension 1 for column vectors and non-trivial matrices,
    and dimension 2 for row vectors.

    [Y,Zf] = FILTER(B,A,X,Zi) gives access to initial and final
    conditions, Zi and Zf, of the delays.  Zi is a vector of length
    MAX(LENGTH(A),LENGTH(B))-1, or an array with the leading dimension
    of size MAX(LENGTH(A),LENGTH(B))-1 and with remaining dimensions
    matching those of X.

    FILTER(B,A,X,[],DIM) or FILTER(B,A,X,Zi,DIM) operates along the
    dimension DIM.

    See also filter2 and, in the Signal Processing Toolbox, filtfilt.
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