1 Matlab Help on filter

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:

\[ a(1)\cdot y(n) = b(1)\cdot x(n) + b(2)\cdot x(n-1) + \ldots + b(nb+1)\cdot x(n-nb) \]
\[ - a(2)\cdot y(n-1) - \ldots - a(na+1)\cdot y(n-na) \]

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.

Questions or comments concerning this laboratory should be directed to Prof. Charles A. Bouman,
School of Electrical and Computer Engineering, Purdue University, West Lafayette IN 47907; (765) 494-
0340; bouman@ecn.purdue.edu