

University of Massachusetts Lowell
Department of Electrical and Computer Engineering

1. You are to convolve the $N - pt = 64$ signal $X(n)$ with an $NF - pt = 8$ low-pass, $HL(n)$ and a high-pass filter $HH(n)$ yielding the signals YL and YH respectively. (see F.py) Note the time delay in the reconstructed signal.
2. YL and YH require $1/2$ the bandwidth of the original signal. Discarding every other time-sample obtain the two 32-point decimated signals $YL2$ and $YH2$.
3. You are to filter the digit-data to obtain feature vectors for each class. Examine the fitness of (a) using 32-pt lowpass features (b) using 32-pt highpass features and (c) in combination.