

MMI504

Exercise .4

Read in a wav file and filter it with the following:

1. Create a filter which filters out both DC and Nyquist frequencies. Plot its magnitude response and compare the original and filtered magnitude responses of the input.
2. Modify the above to boost $f_n/2$ and repeat the same.
3. Design a notch filter with a notch frequency of $f_n/2$ and repeat the steps.
4. Design a comb filter with the following specifications:

$$H(e^{j\omega}) = \begin{cases} 0 & \text{for } \omega = k\omega_n/3 \quad k = \pm 1, \pm 2, \pm 3 \\ = 1 & \text{otherwise} \end{cases}$$

MATLAB commands – *filter* , *pzmap* , *fvtool*