Inverse filter speech exercise

In this exercise you are to recover a speech signal that has been distorted by a known discrete-time LTI system H

original speech -> LTI SYSTEM H -> distorted speech

The distorted speech signal is provided in the wave file distorted.wav

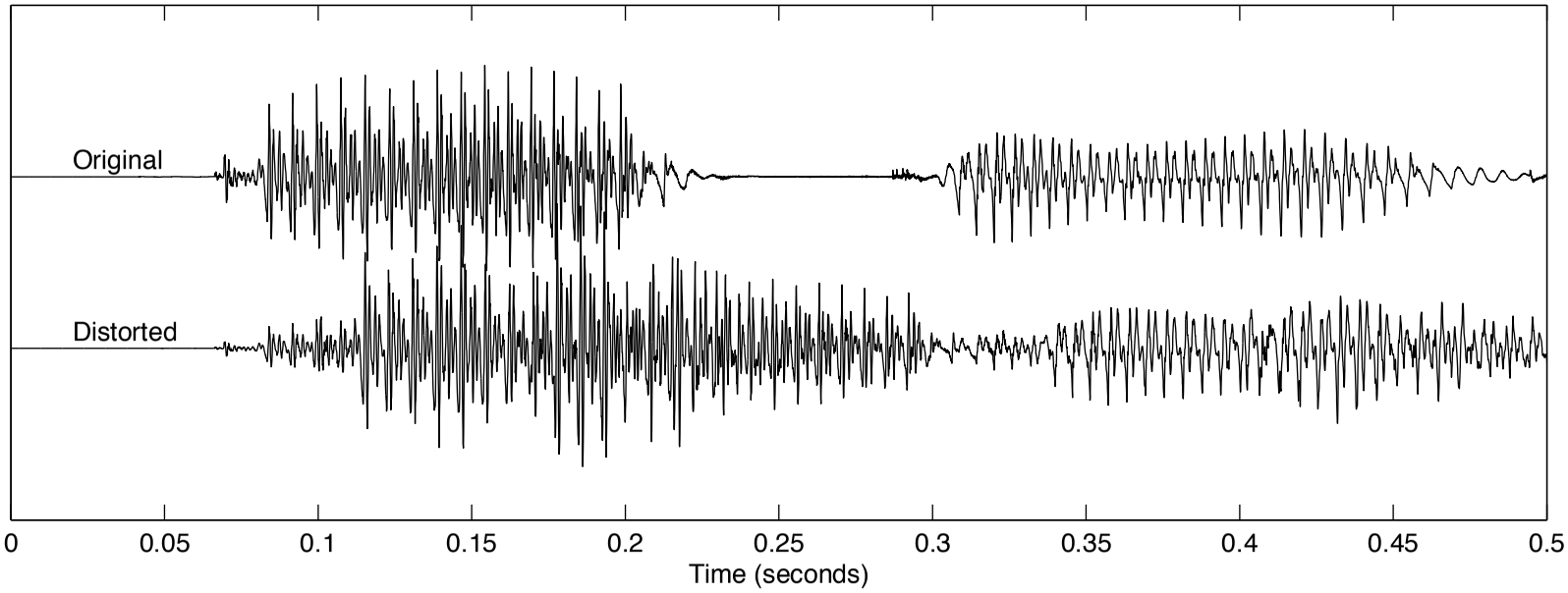
The LTI system H has impulse response

$$h(n) = 0.3\,\delta(n) + 0.9\,\delta(n - 500) + 0.6\,\delta(n - 1500)$$

Using MATLAB, load the distorted speech signal and implement the inverse of system H to recover the original speech signal.

The first 0.5 second of the original and distorted speech signals is shown in the figure.

Optional: You can implement your inverse system using the MATLAB function filter both forwards and backwards.


Original
Distorted
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
Time (seconds)