

## Deinterlacing Tutorial Exercise

### Exercise

Consider the following deinterlacing method:

$$\hat{f}(t, m) = \frac{1}{2}f(t-1, m) + \frac{9}{32}[f(t, m-1) + f(t, m+1)] - \frac{1}{32}[f(t, m-3) + f(t, m+3)],$$

where  $f(t, m)$  represent the image value at field  $t$  and line  $m$ . For field  $t$ , we assume that the lines  $m + 2k, k = 0, 1, \dots$  are missing. Find the equivalent interpolation filter for the above deinterlacing operation and calculate its frequency response.