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CSCI-B 456

Assignment 2

* 1. Need to find a and a vector that when multiplied together equal w.
  2. can be factored out of each row, leaving

1. The histograms of the blurred images would not be the same because the image on the right has many more pixels on the white-black boundary. Therefore, more pixels will be grayed by blurring the right image than the left image.
   1. Estimated pixel values for Diagonal image

|  |  |
| --- | --- |
| **Color** | **Percentage of Pixels** |
| Black | 49% |
| Gray (all shades) | 2% |
| White | 49% |

* 1. Estimated pixel values for Checkerboard image

|  |  |
| --- | --- |
| **Color** | **Percentage of Pixels** |
| Black | 47% |
| Gray (all shades) | 6% |
| White | 47% |

* 1. Note: used in above line to denote convolution, not matrix multiplication
  2. The final size of the filter is .
  3. The final standard deviation is .
  4. Note: used in above line to denote convolution, not matrix multiplication
  5. The final size of the filter is
  6. The final standard deviation is

1. Show that
   * 1. The quantity within the brackets represents the sum of a pixel’s value with its four direct neighbors. However, this quantity needs to be divided by 5 to find the average of the values:
   1. The subtraction of the Laplacian from an image is proportional to an unsharp masking, as it can be rewritten using the terms of the unsharp masking equation multiplied by real constants.