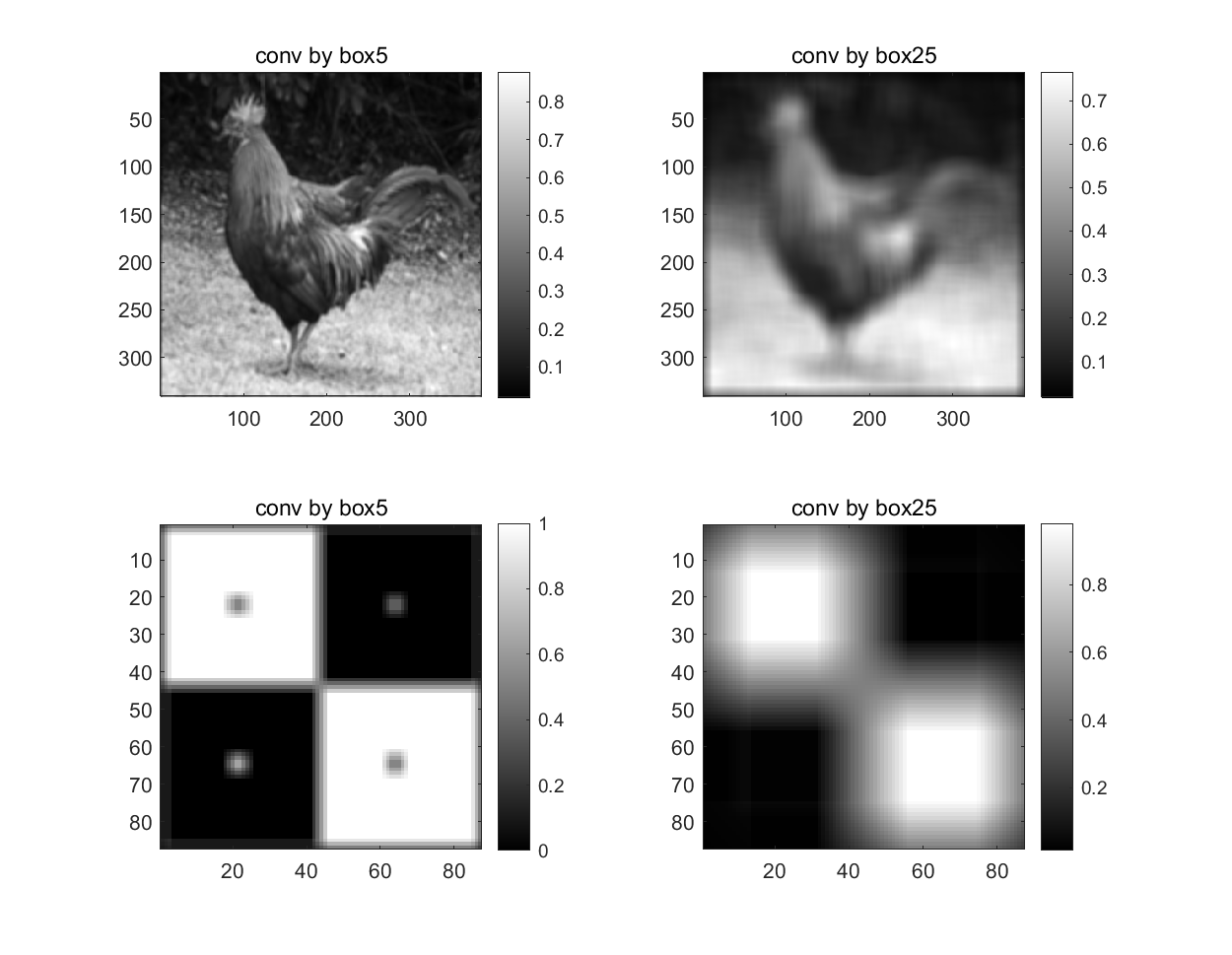
**Low-Level Computer Vision with MATLAB**

3.1.1

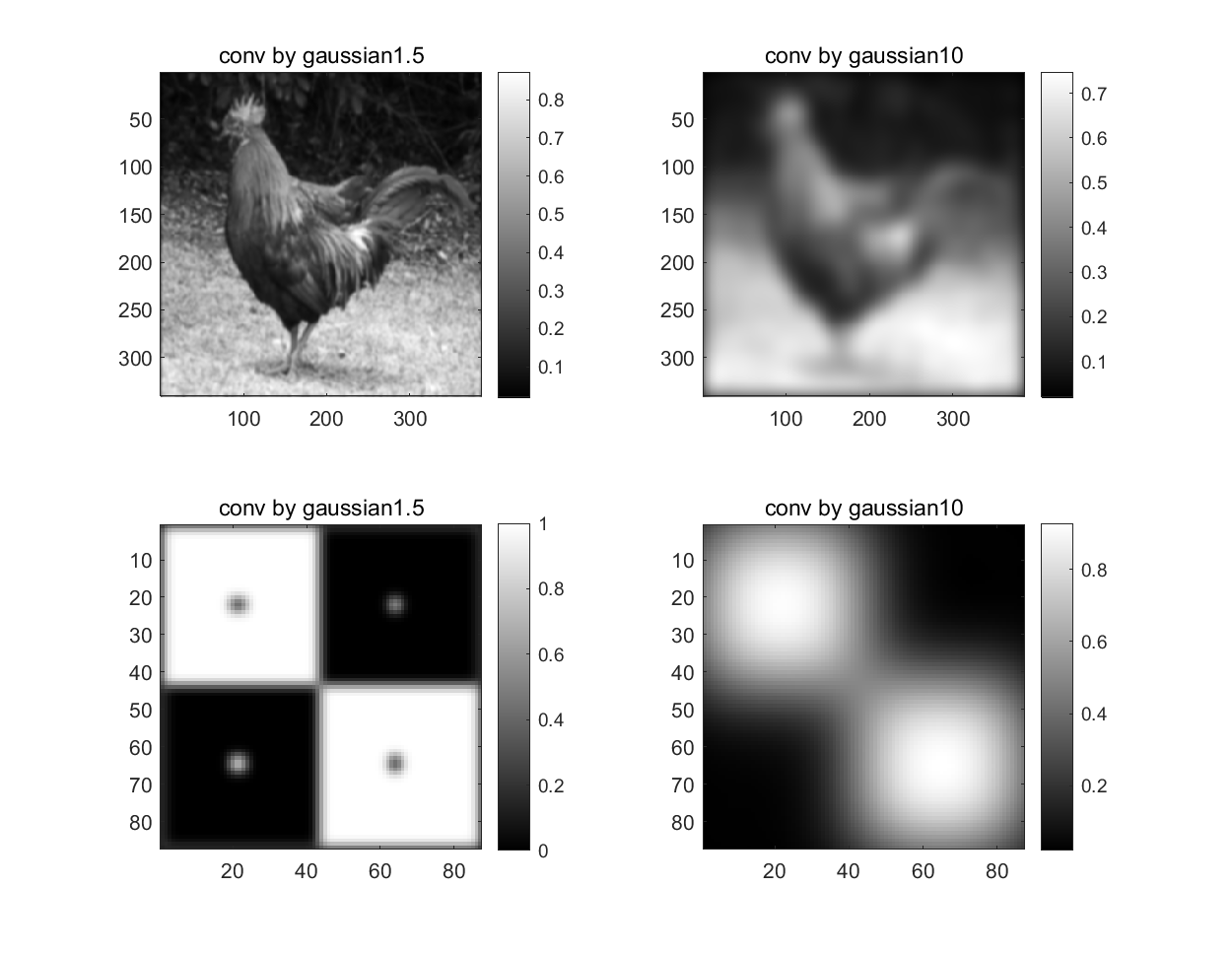
Box masks are generated by fspecial(‘average’). Argument-shape in conv2 is ‘same’ to ensure that all results are the same size with the original picture.



Both rooster and boxes are blurred after being convolved with box masks as box masks use average value with neighbor pixel to replace the real value of each pixel. However, it is clear that picture becomes more blurred convolved with large mask (25×25) than the small one (5×5). It not only can be intuitively seen but also can be proved from the fact that four little squares in boxes are still there in subplot223 but disappear in subplot224. It is because the bigger the size of mask is, more neighbor pixels are involved into average calculation, which will cause more blurred.

1.2.1

Gaussian masks are generated by fspecial(‘gaussian’). In fspecial, argument-hsize is 6 times bigger than argument-sigma to ensure the mask size is sufficient to accurately represent the Gaussian. Argument-shape in conv2 is ‘same’ to ensure that all results are the same size with the original picture.

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Both rooster and boxes are blurred after being convolved with gaussian masks as gaussian masks use gaussian function to calculate weighted average of pixel value with neighbor pixel. However, picture becomes more blurred convolved with mask of large standard deviations (10) than the small one (1.5). It not only can be intuitively seen but also can be proved from the fact that four little squares in boxes are still there in subplot223 but disappear in subplot224. It is because that larger standard deviation means neighbor pixel has relatively bigger weight, which means neighbor influents more during calculation.

4.1.1

