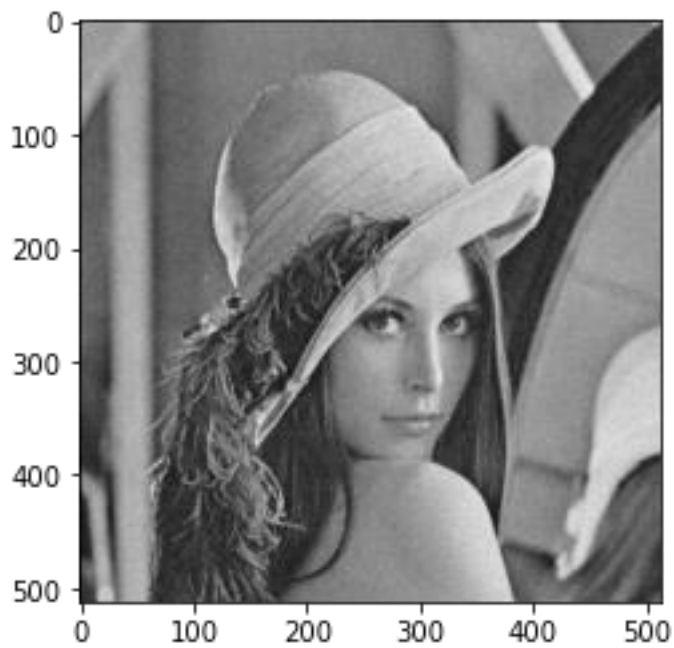


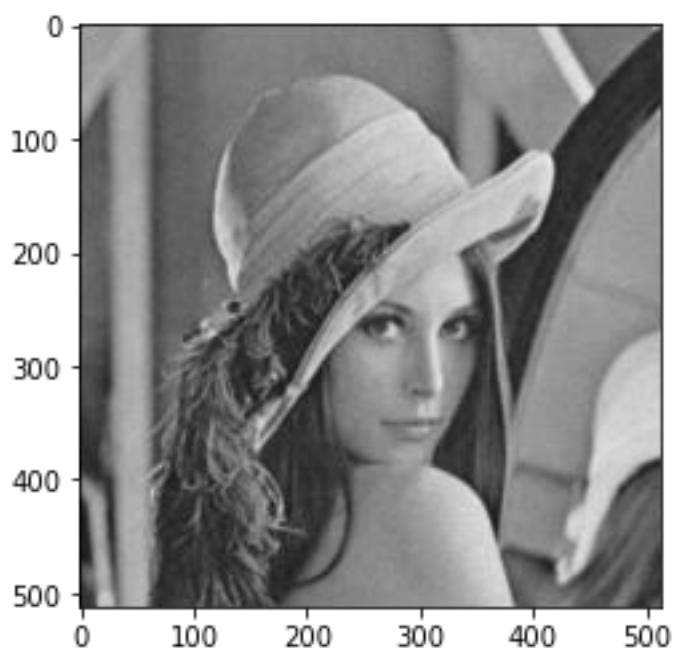
Python 版本 3.6.12

使用套件 cv2, numpy, matplotlib

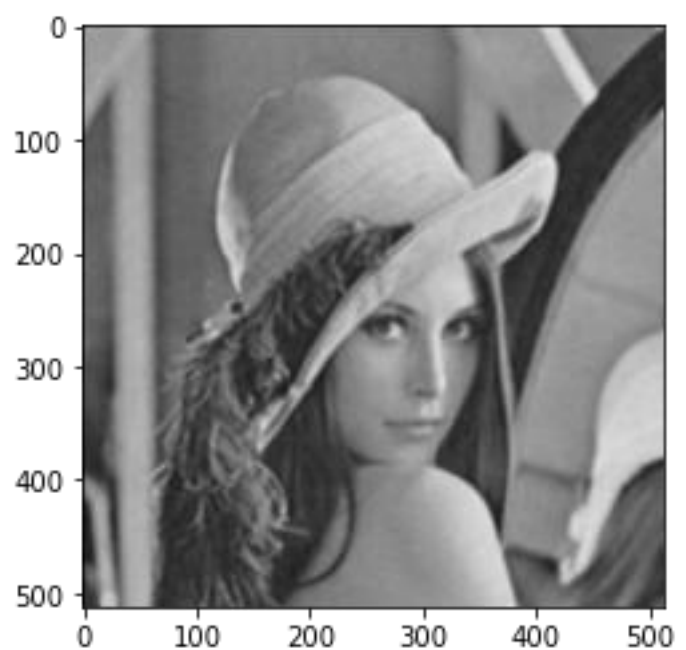
(1) images with gaussian noise(amplitude of 10)



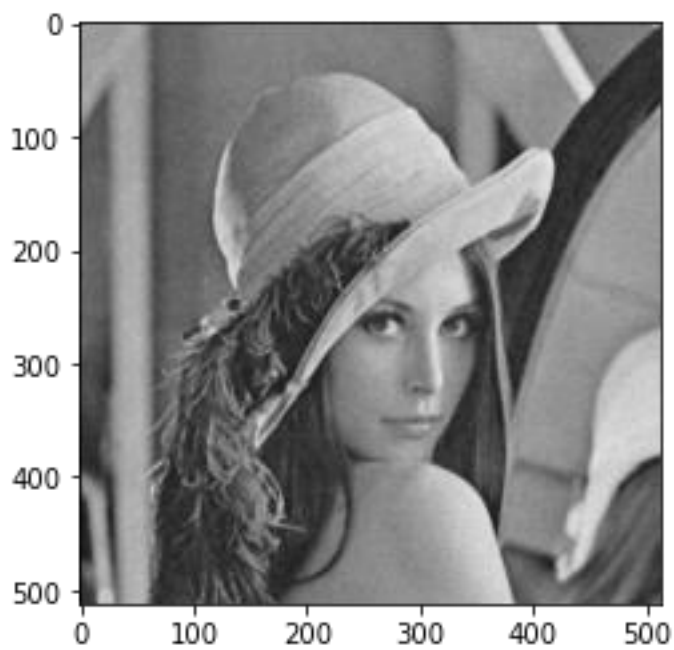
images with gaussiannoise(amplitude of 10), SNR=13.5787



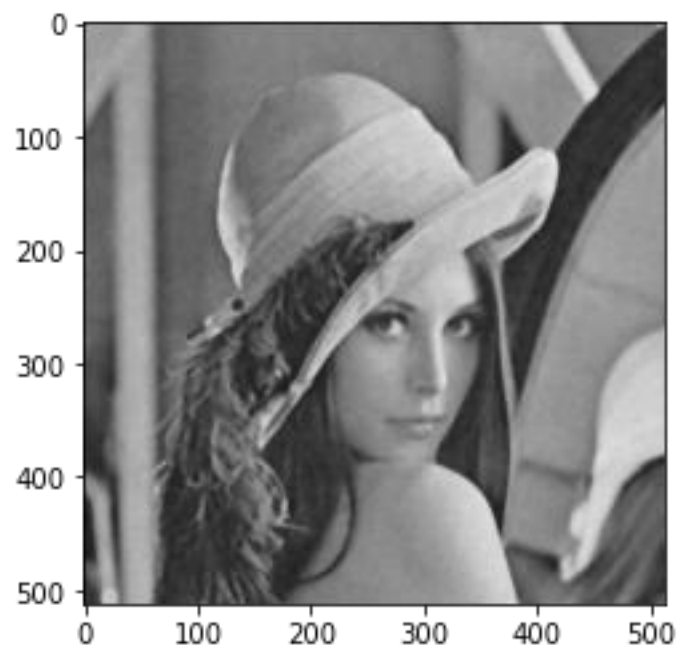
Box_3x3, SNR = 17.6666



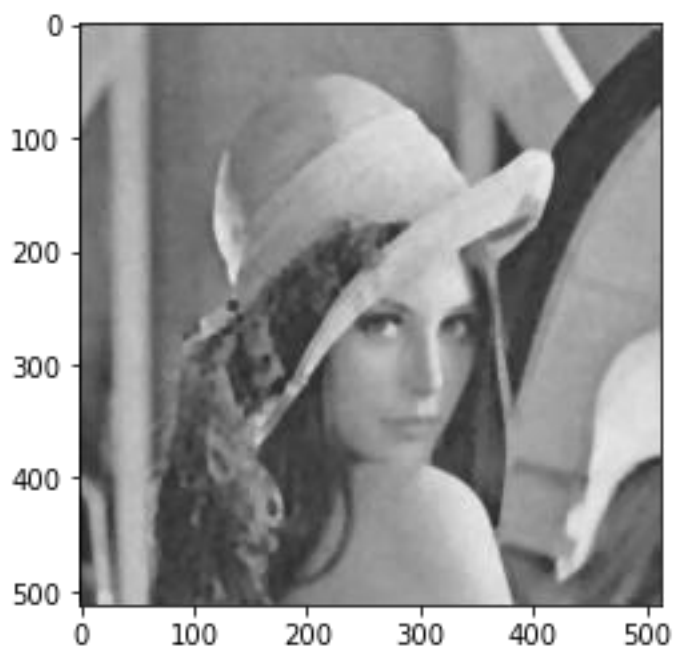
Box_5x5, SNR = 14.8030



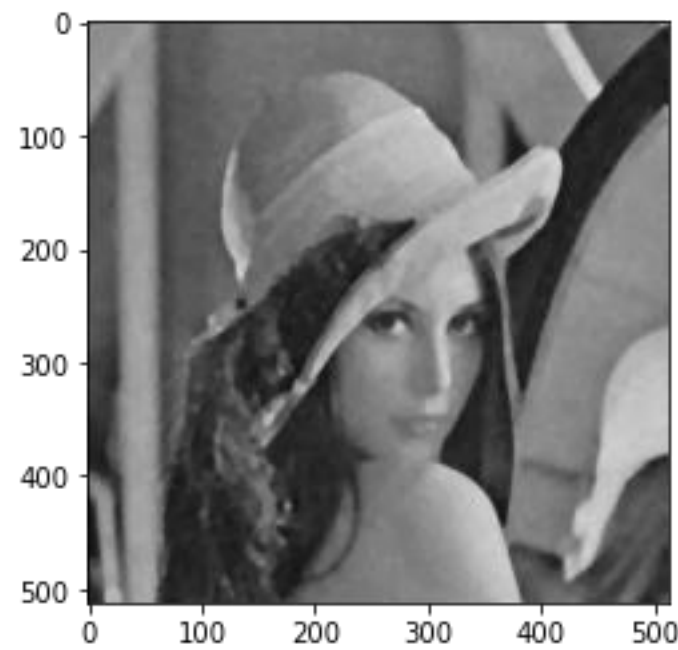
Median_3x3, SNR = 17.5822



Median_5x5, SNR = 15.9380

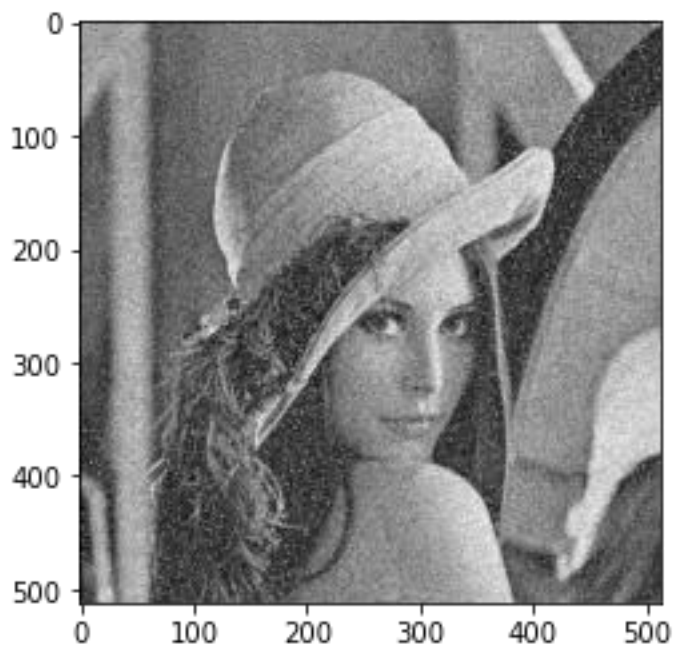


Opening-then-closing, SNR = 11.7684

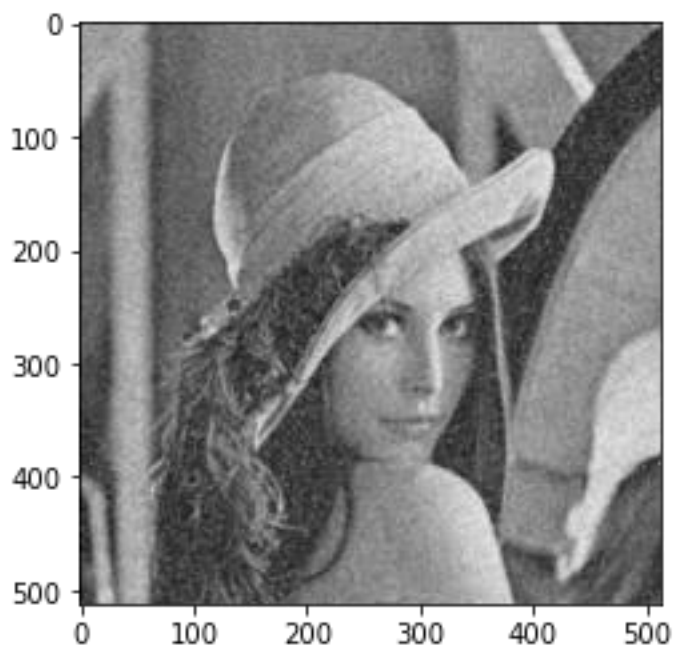


Closing-then-opening, SNR = 11.7680

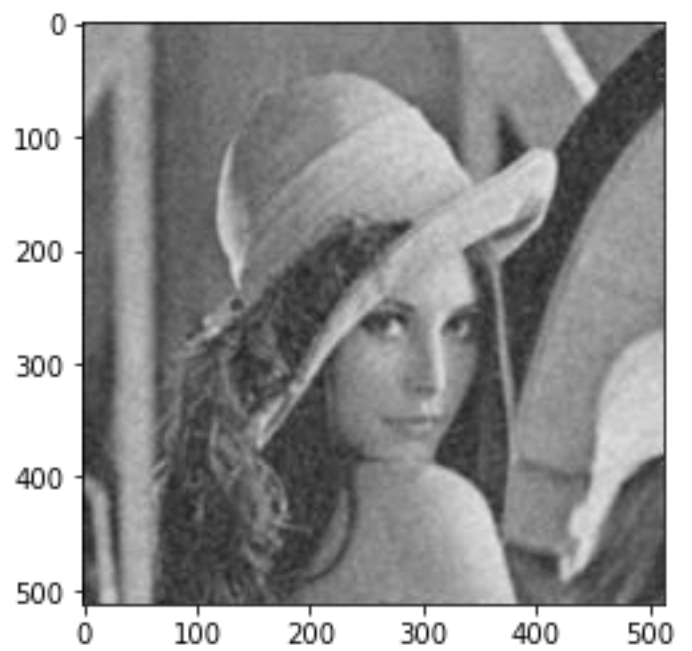
(2) images with gaussian noise(amplitude of 30)



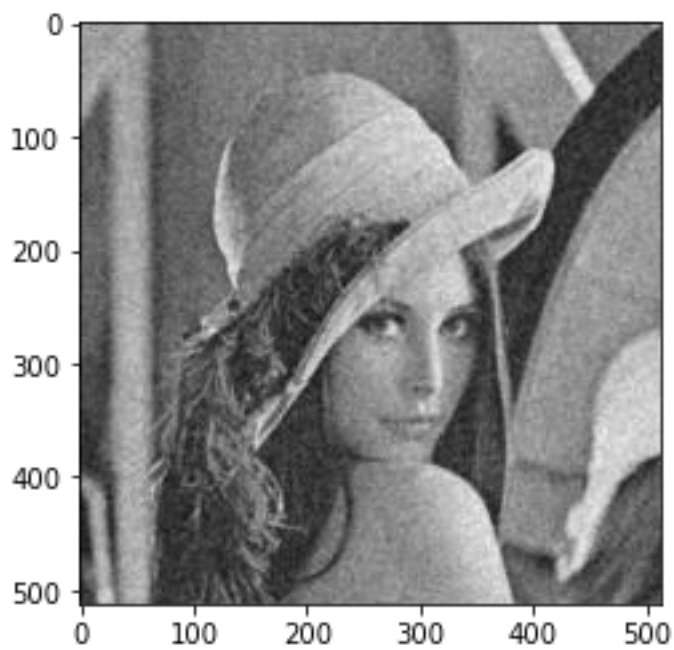
images with gaussian noise(amplitude of 30), SNR= 2.8137



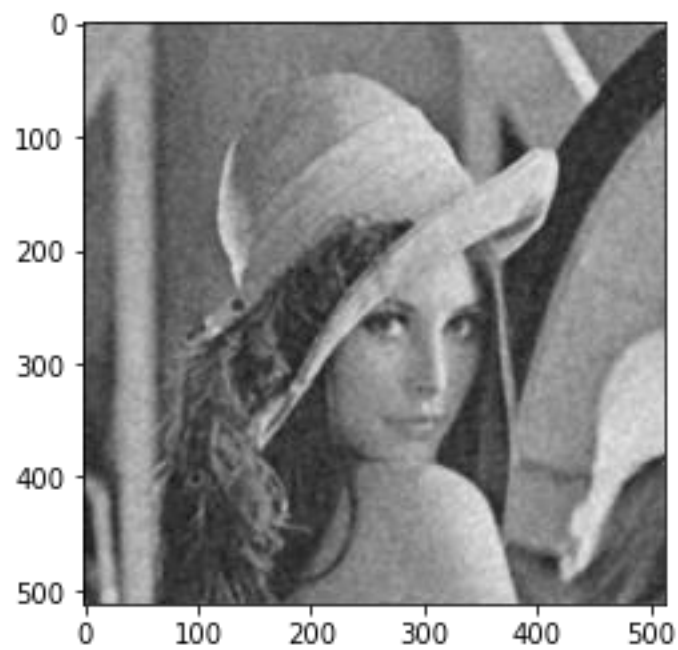
Box_3x3, SNR = 10.6133



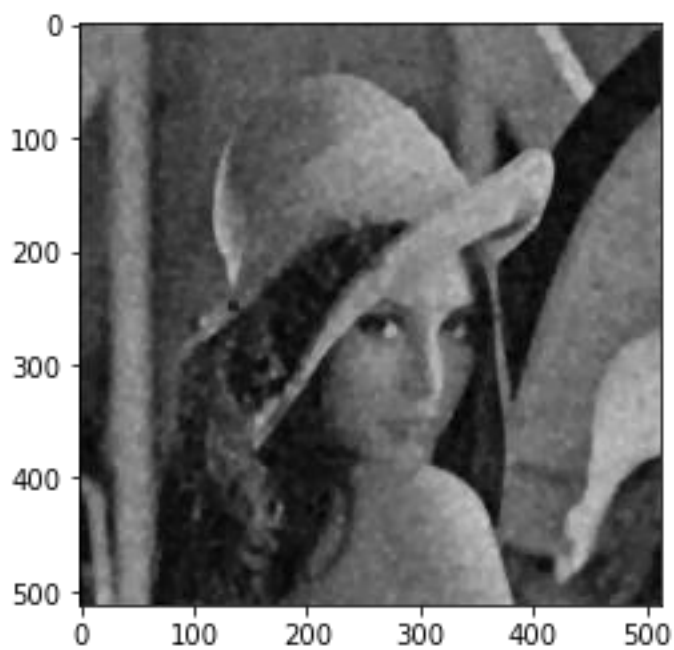
Box_5x5, SNR = 11.3057



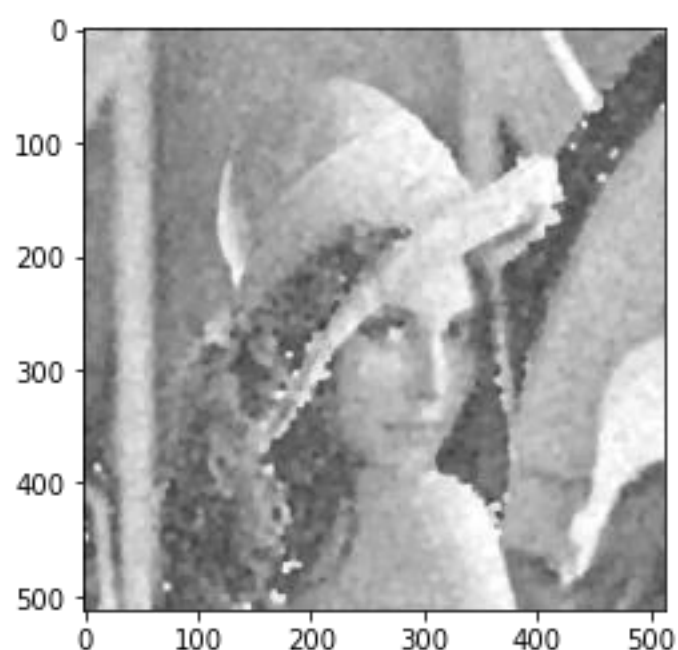
Median_3x3, SNR = 10.7051



Median_5x5, SNR = 12.0908

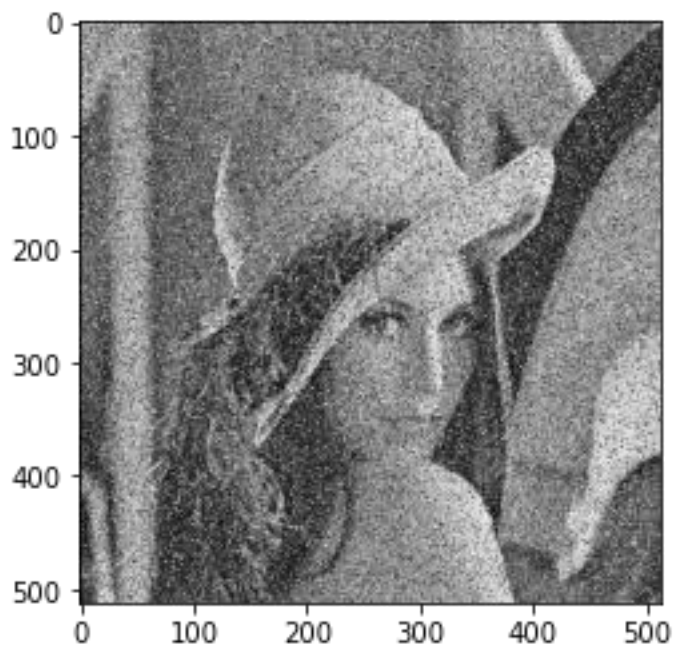


Opening-then-closing, SNR = 10.5502

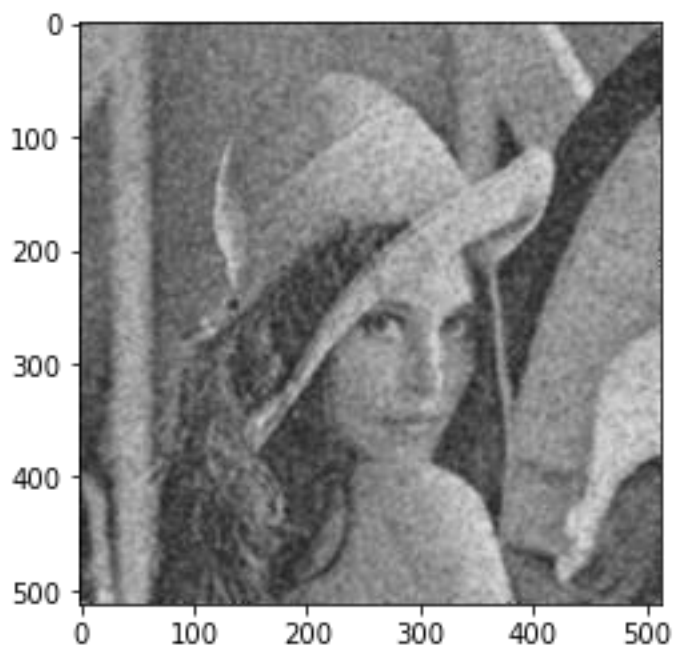


Closing-then-opening, SNR = 7.2205

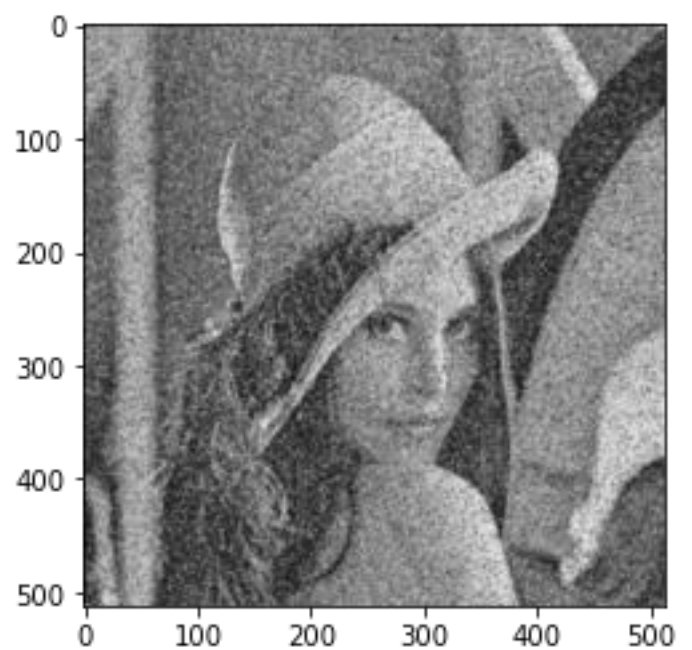
(3) Salt-and-pepper noise, probability=0.1



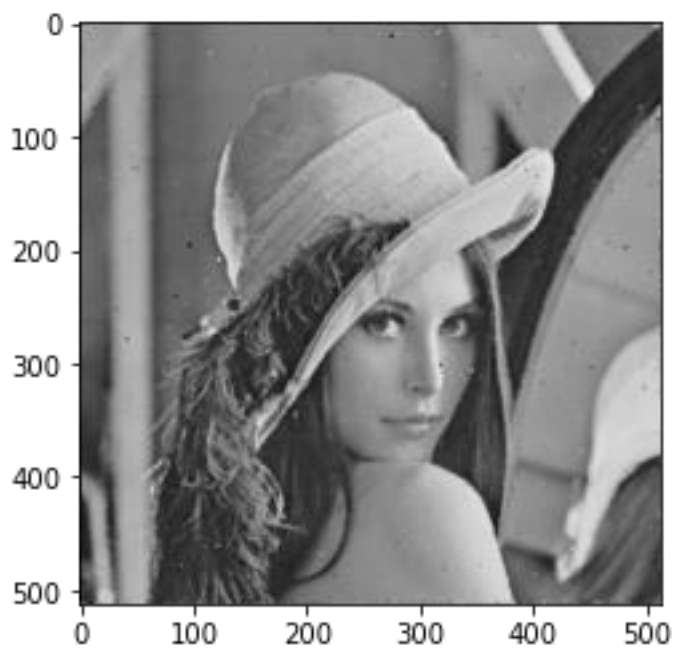
Salt-and-pepper noise, probability=0.1, SNR = -2.3161



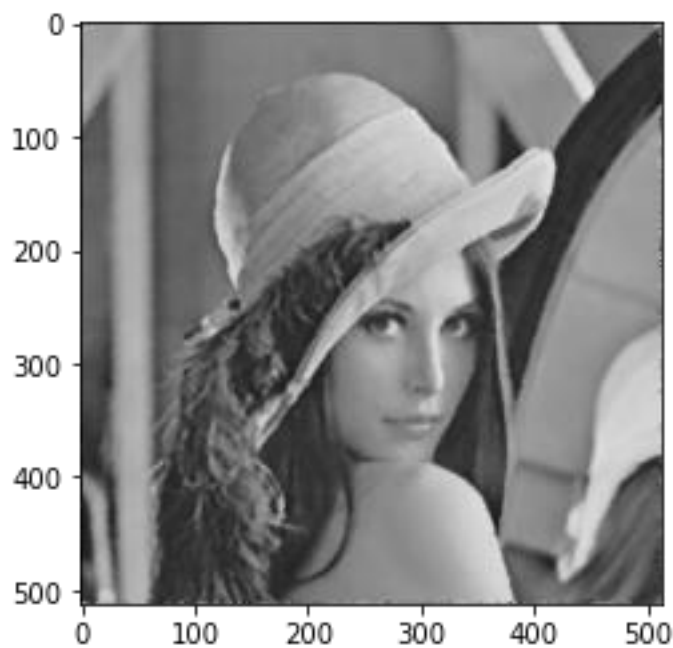
Box_3x3, SNR = 6.0718



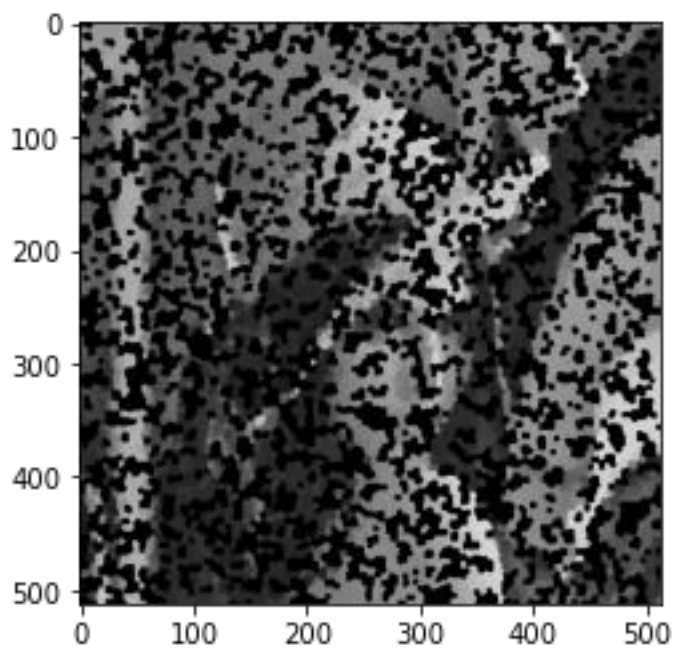
Box_5x5, SNR = 7.7247



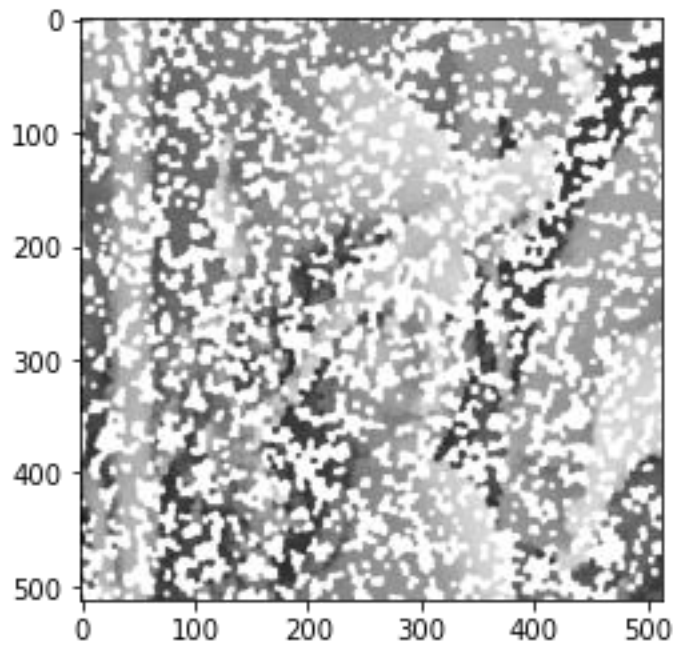
Median_3x3, SNR = 13.5907



Median_5x5, SNR = 12.7946

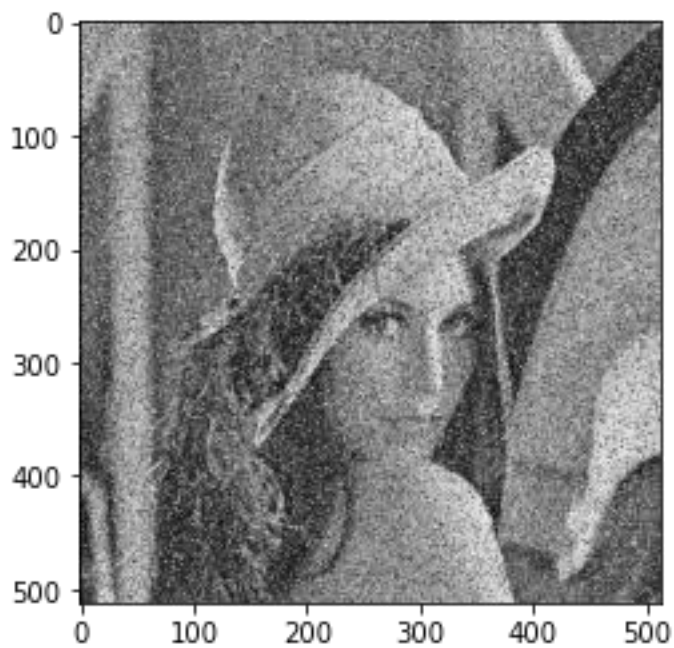


Opening-then-closing, SNR = -2.6135

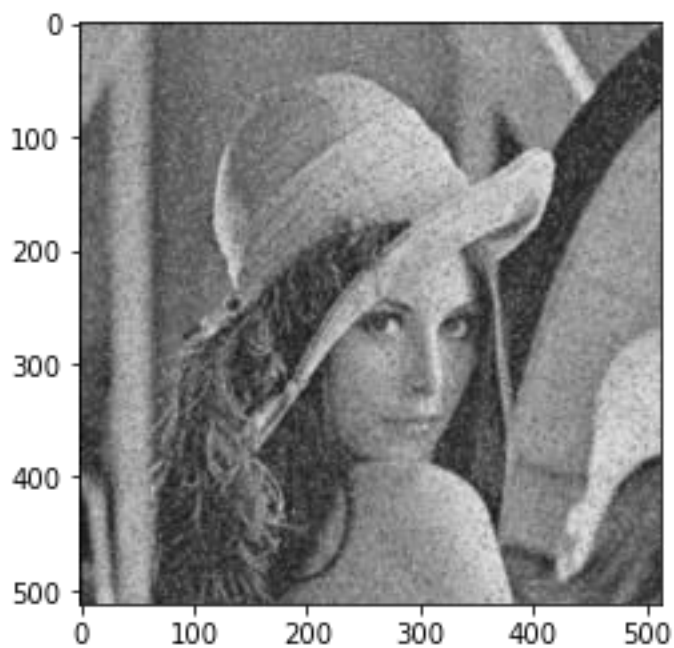


Closing-then-opening, SNR = -2.9926

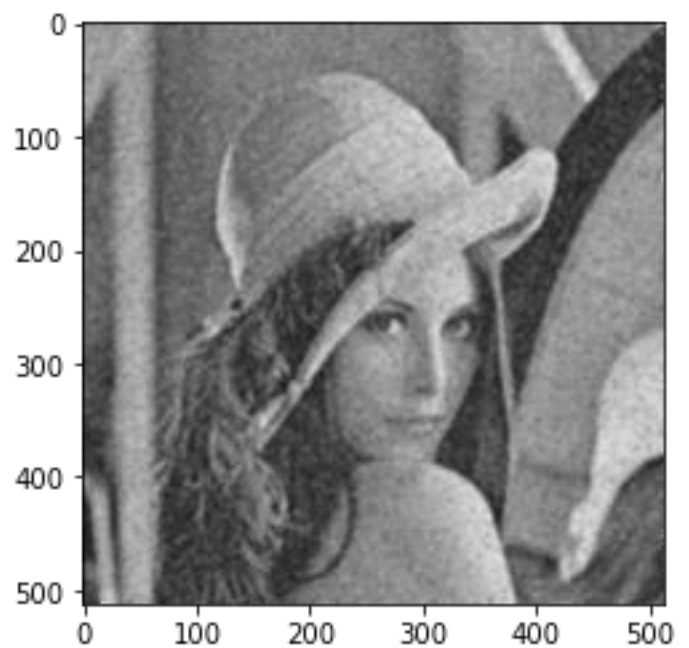
(4) Salt-and-pepper noise, probability=0.05



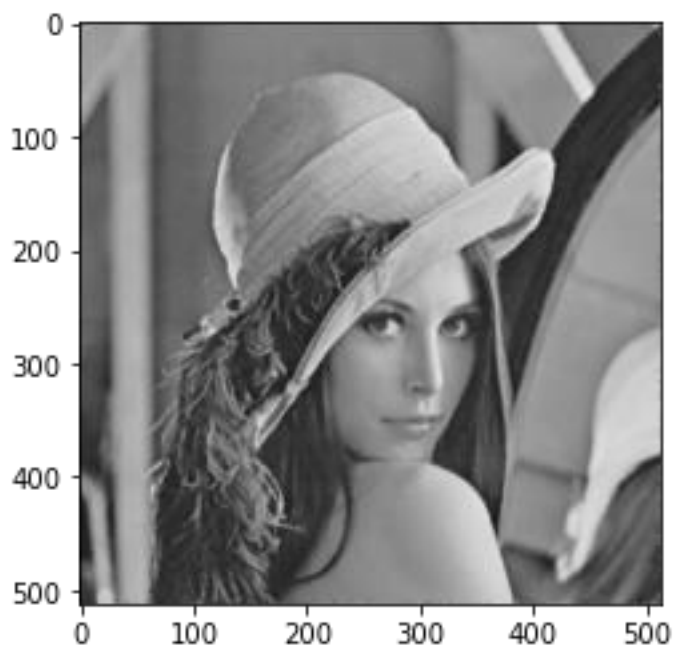
Salt-and-pepper noise, probability=0.05, SNR = -2.1361



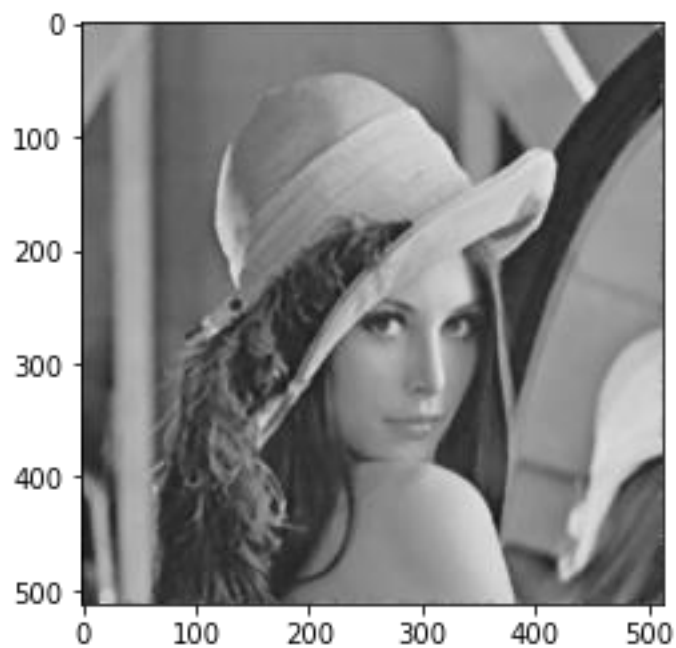
Box_3x3, SNR = 9.1791



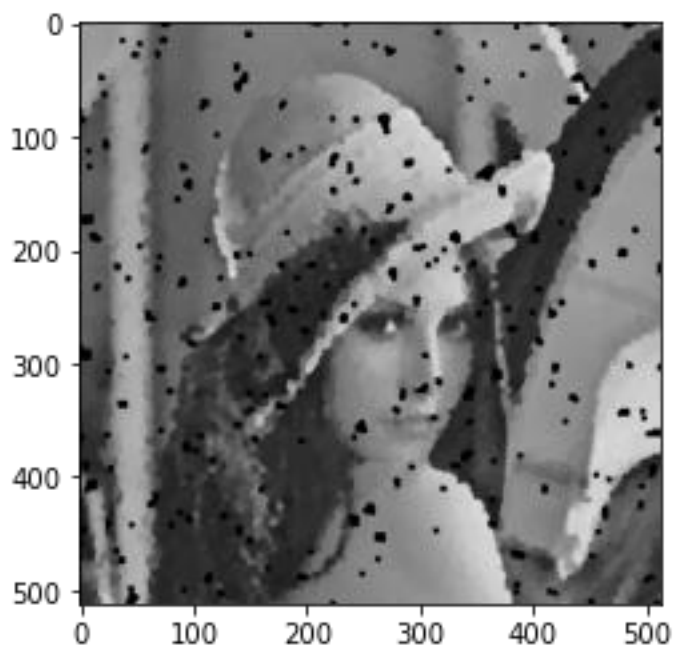
Box_5x5, SNR = 10.5110



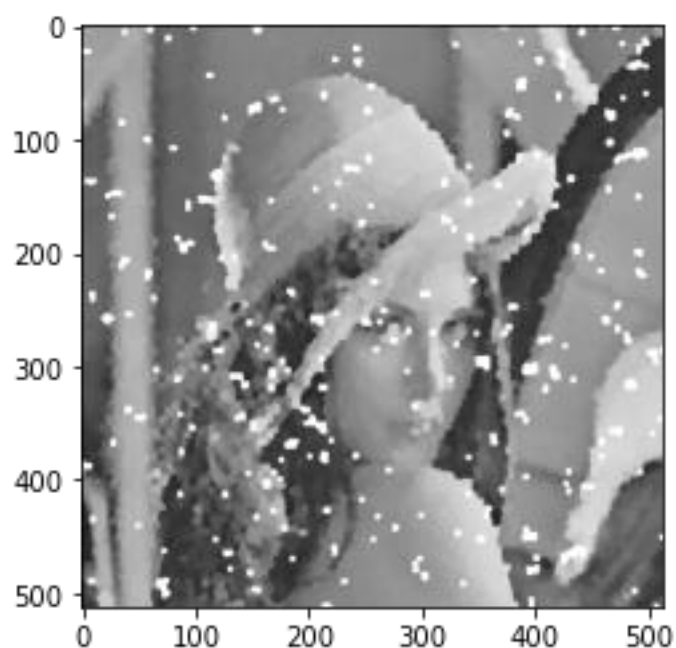
Median_3x3, SNR = 17.2932



Median_5x5, SNR = 14.5274



Opening-then-closing, SNR = 4.2916



Opening-then-closing, SNR = 3.7076