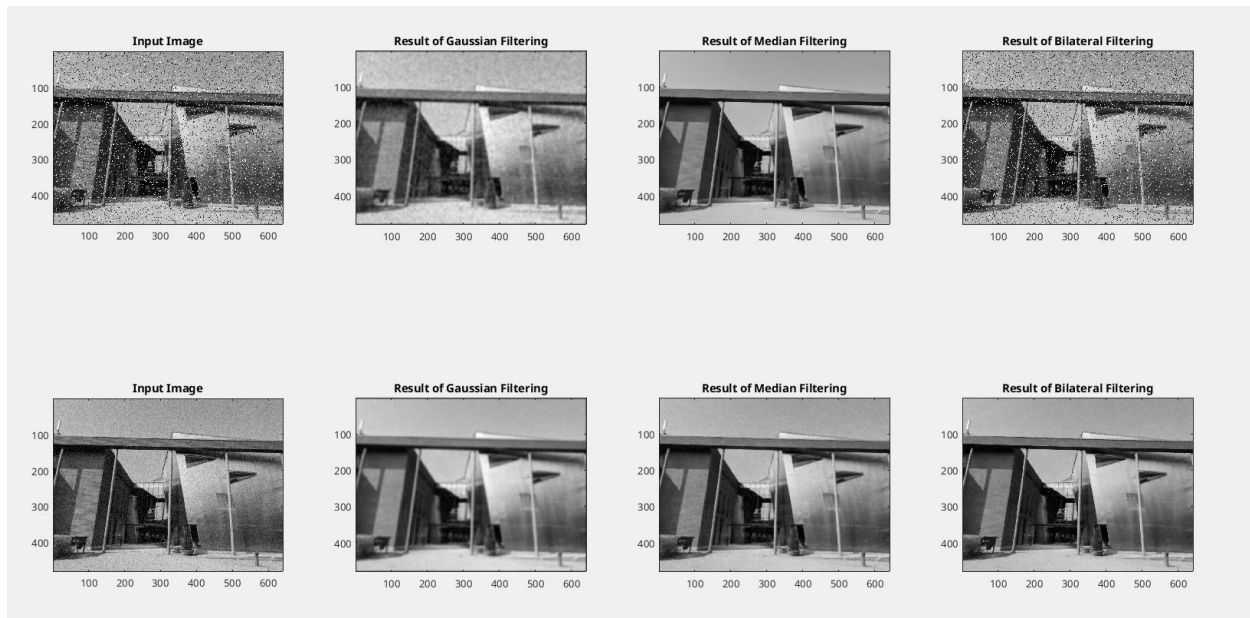
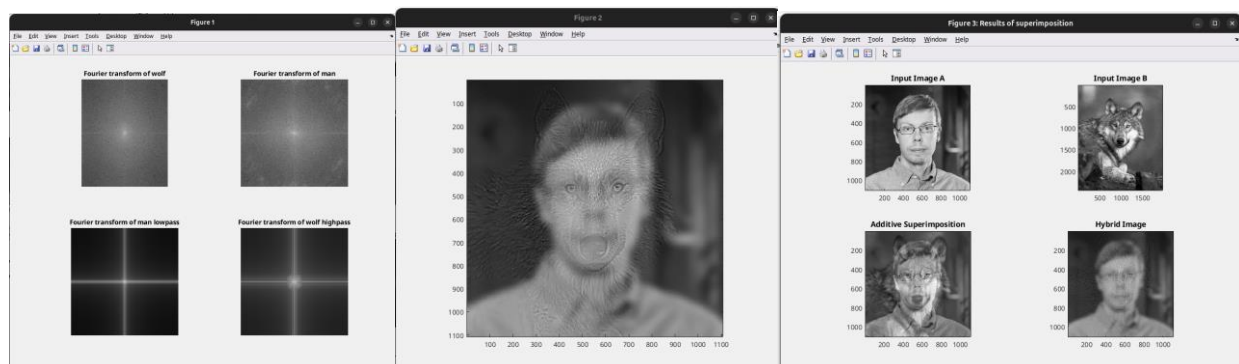


1. In this exercise, the goal is to denoise two example images using three different filtering techniques: Gaussian filtering, median filtering, and bilateral filtering. Below are the results of each method applied to the images.

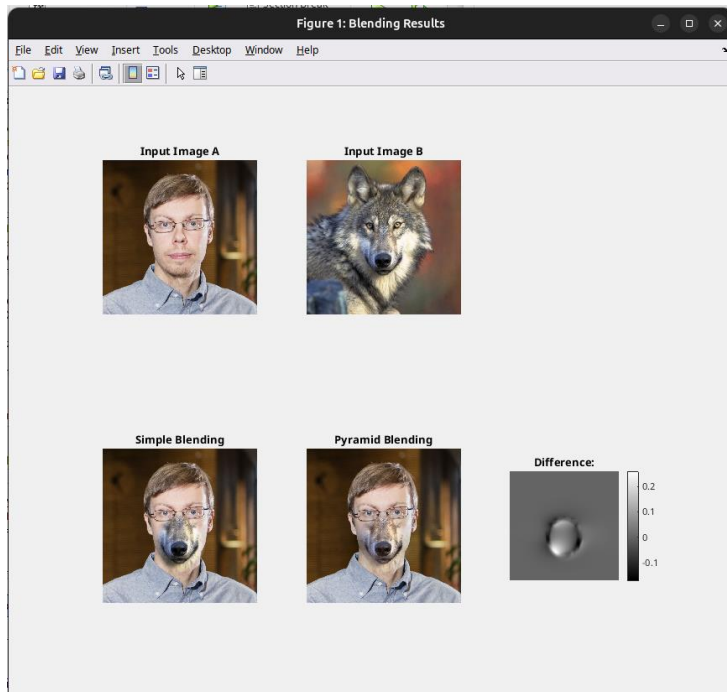


- **Gaussian filtering** reduces noise but at the cost of some loss in edge sharpness.
  - **Median filtering** is effective for removing salt-and-pepper noise while preserving edges, making it ideal for images with such noise characteristics.
  - **Bilateral filtering** fails to remove the noise because the noisy pixels are too different from the neighbors.
2. In this exercise, we combine the facial images of a wolf and a man to create a hybrid image.



The hybrid image combines the high-frequency details of the wolf with the low-frequency content of the man. When viewed up close, the wolf's face is visible, while at a distance, the man's face emerges due to the dominance of low-frequency information.

3. In this exercise, we blend facial images of a wolf and a man using Laplacian pyramids. The process involves generating Gaussian and Laplacian pyramids, performing blending, and reconstructing the final blended image.



Max-reconstruction-error with value of  $5,51 \times 10^{-16}$  (extremely low  $\sim 0$ )

The results are similar, but Pyramid Blending achieves a smoother blending due to the frequency decomposing.