Computer Vision – Week 1

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1. Lets represents the input
2. The output of the hidden unit for this training case:

The output of the output unit for this training case:

1. The loss of this training case:
2. The derivative of the loss with respect to w2
3. The derivative of the loss with respect to w1
5. Euclidean distance:

Cosine similarity:

1. Intersection:
3. translation: : 2 Dof
4. euclidean: : 3 Dof
5. similarity: : 4 Dof
6. affine: : 6 Dof
7. projective: : 8 Dof

Projective has only 8 Dof because the important of this transformation is ratio not the actual value themselves, so this matrix can be changed by multiplication by an arbitrary non-zero scale factor, which make one of the 9 elements result into 1, for example, 1/h33. Therefore, there are only 8 independent ratios among 9 elements.

1. 
2. Figure 1

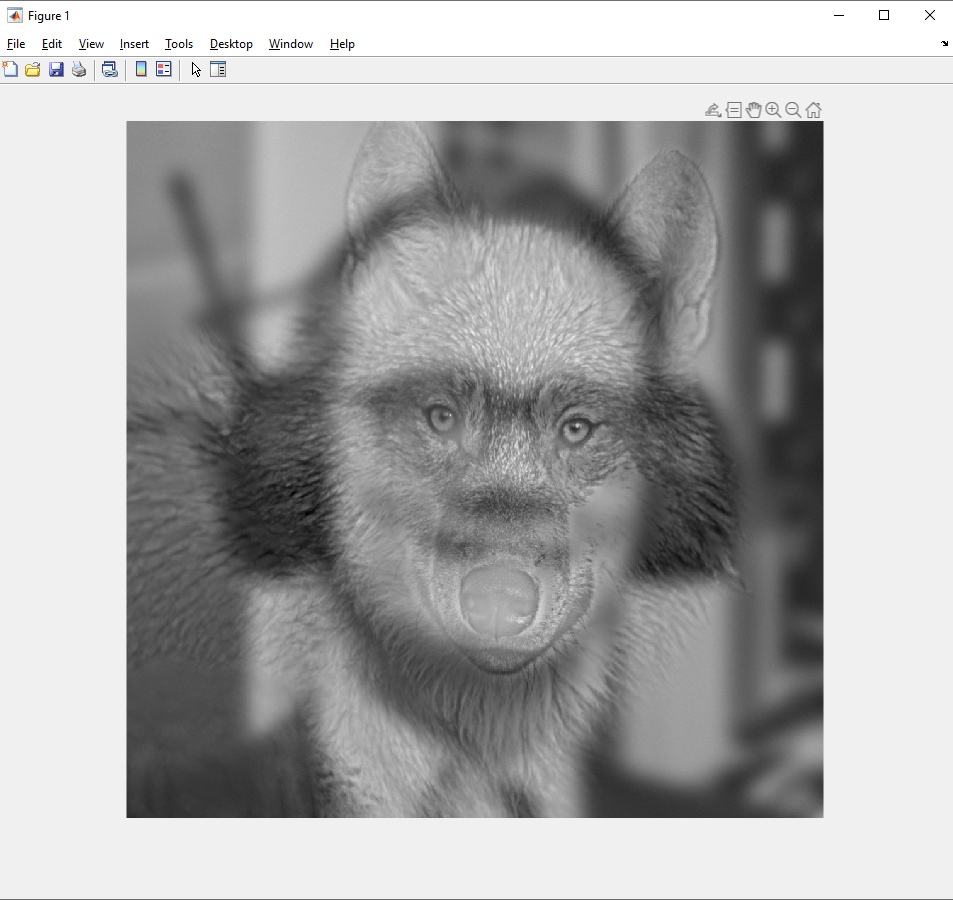
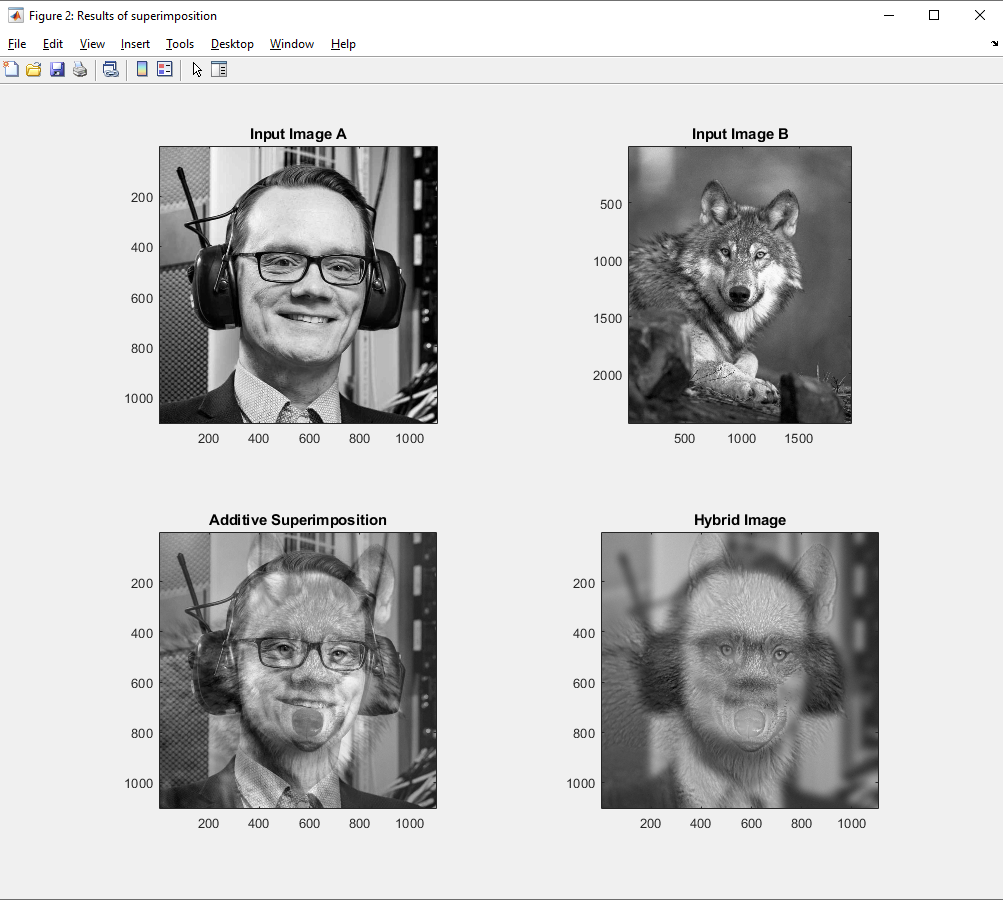
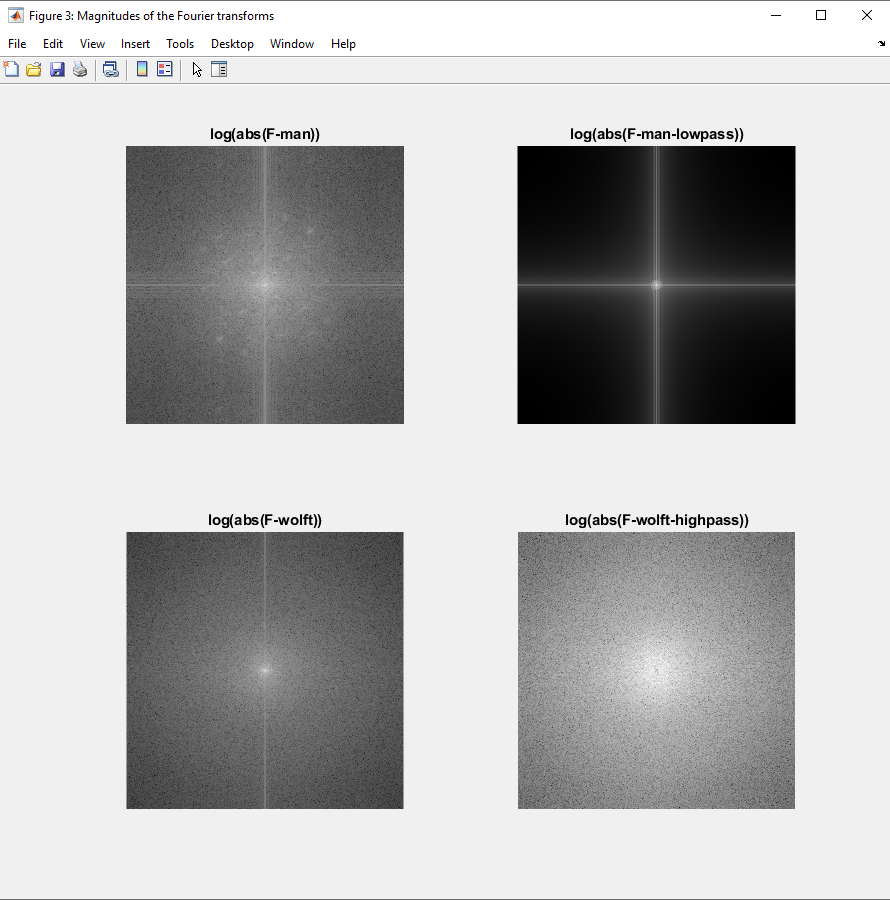


Figure 2



Figure 3