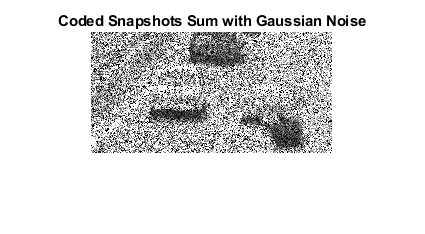
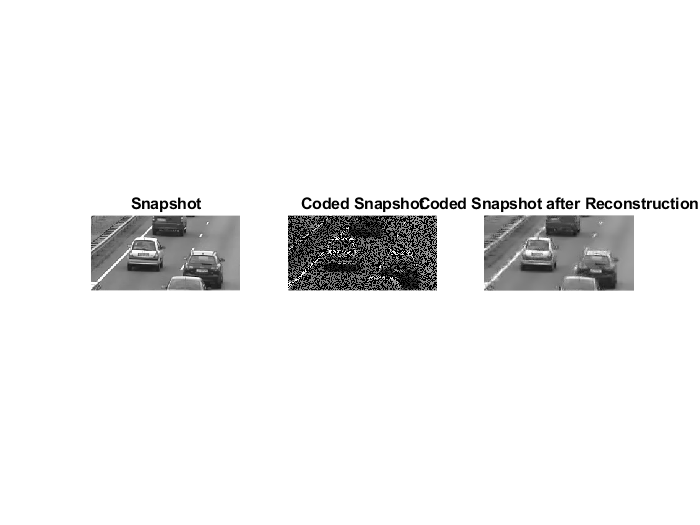
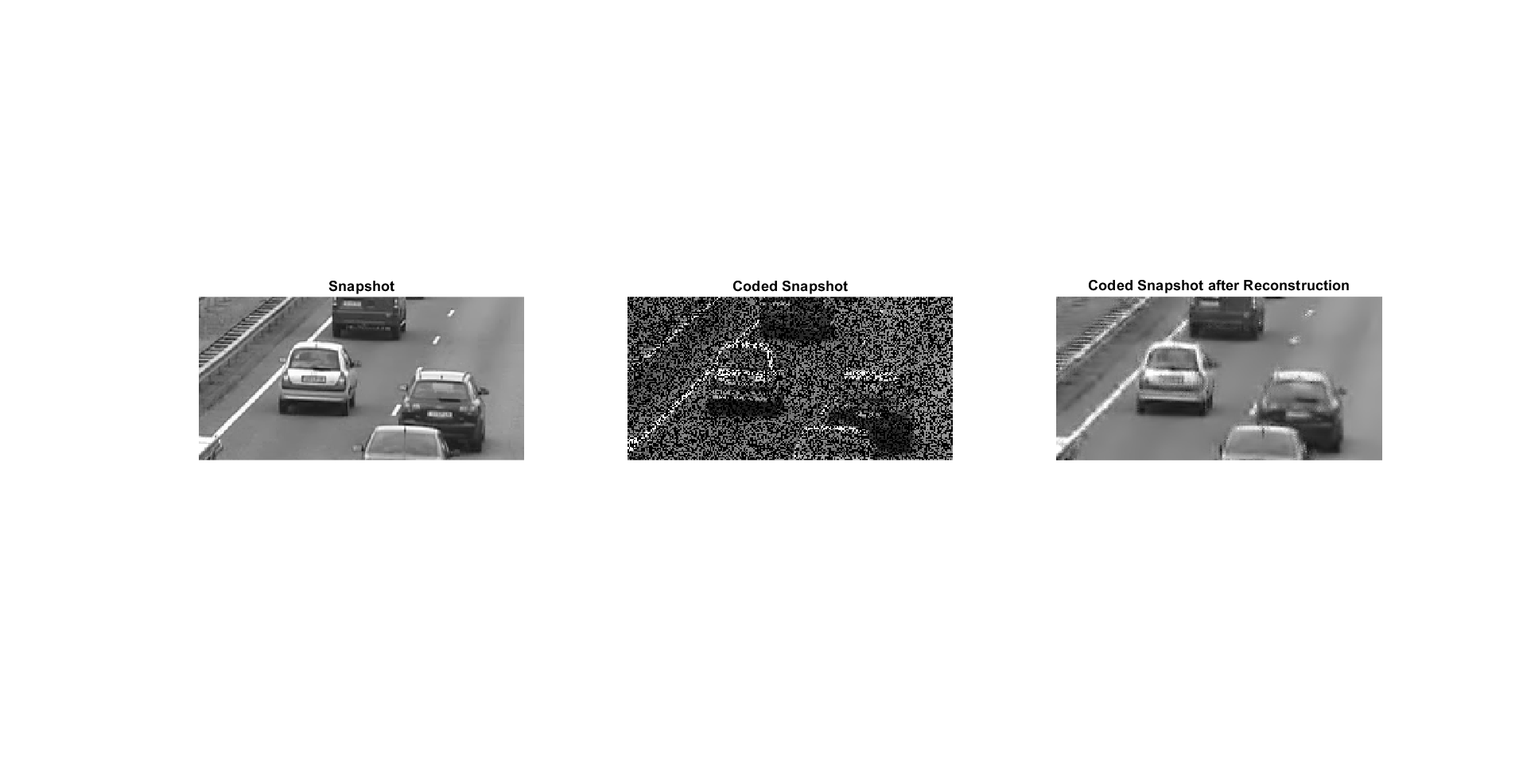
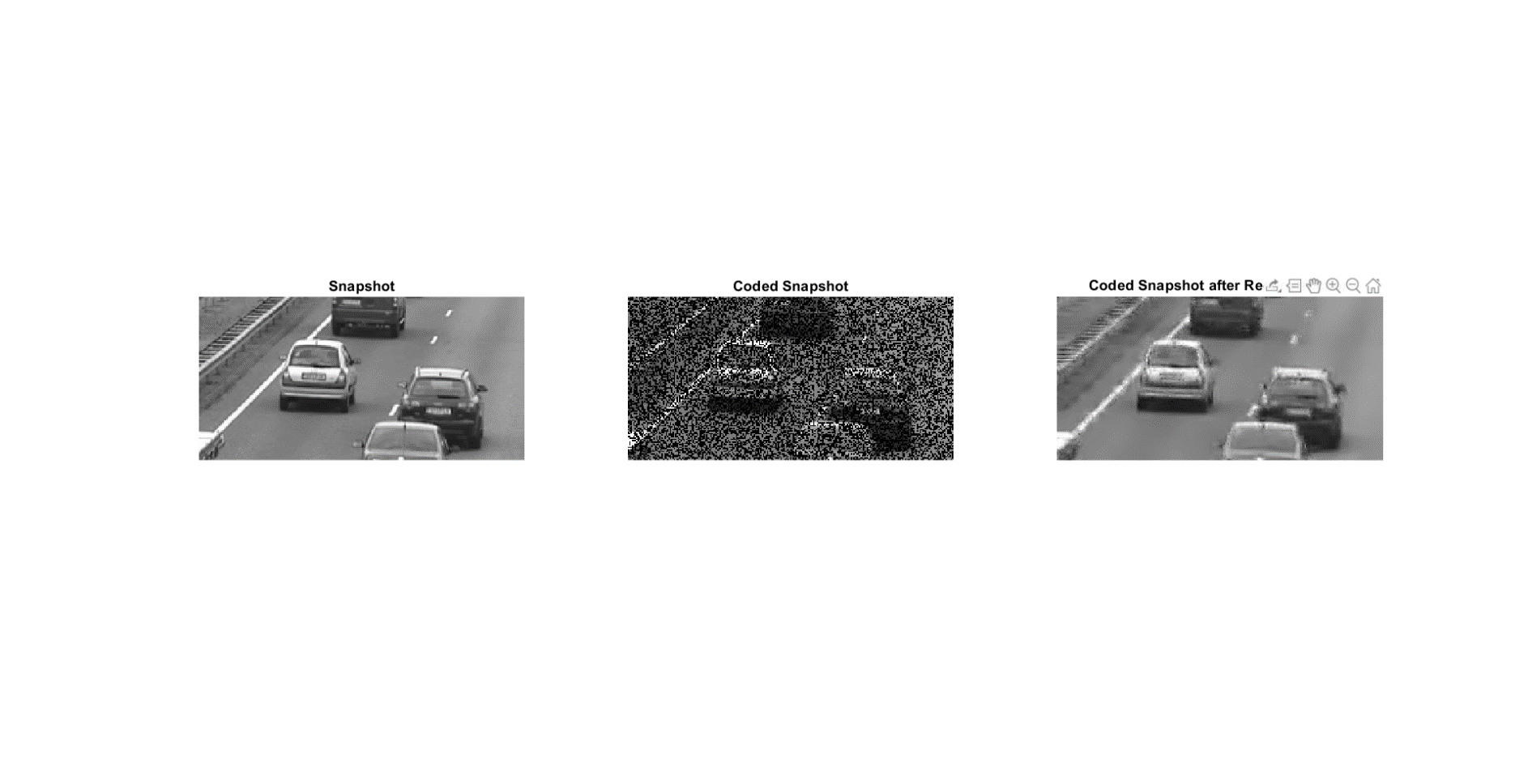
**Q2**

T = 3

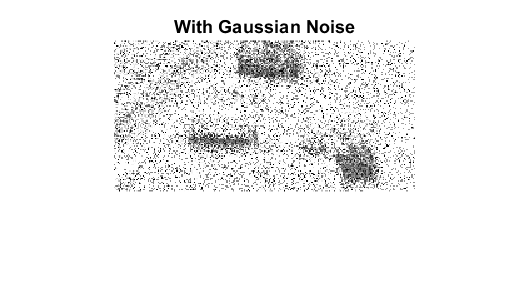


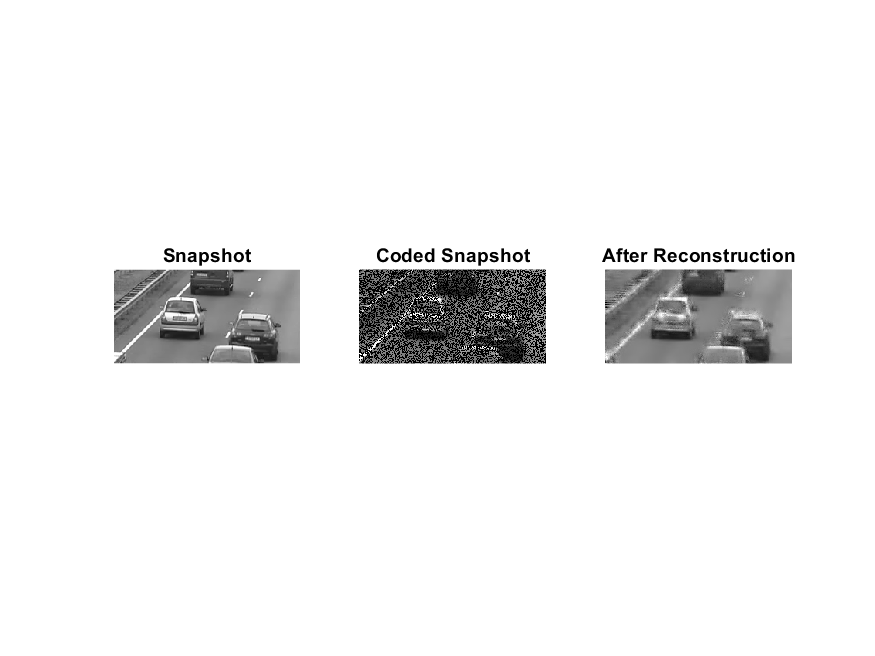


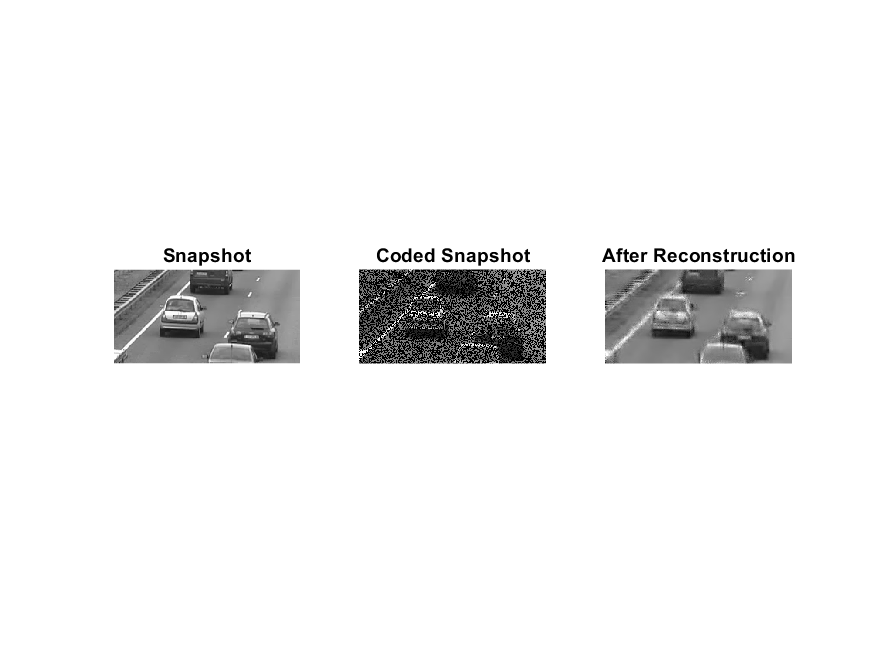


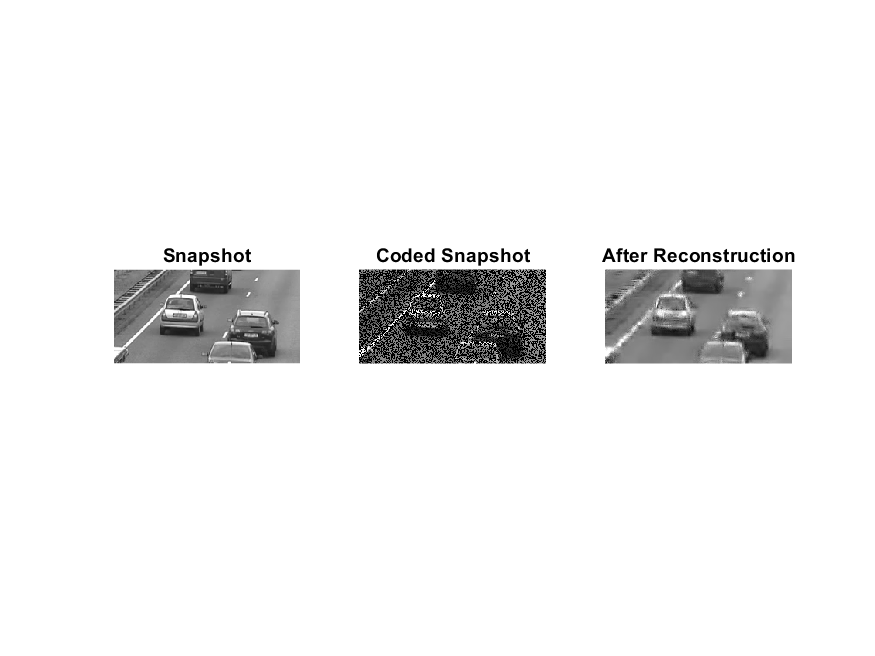


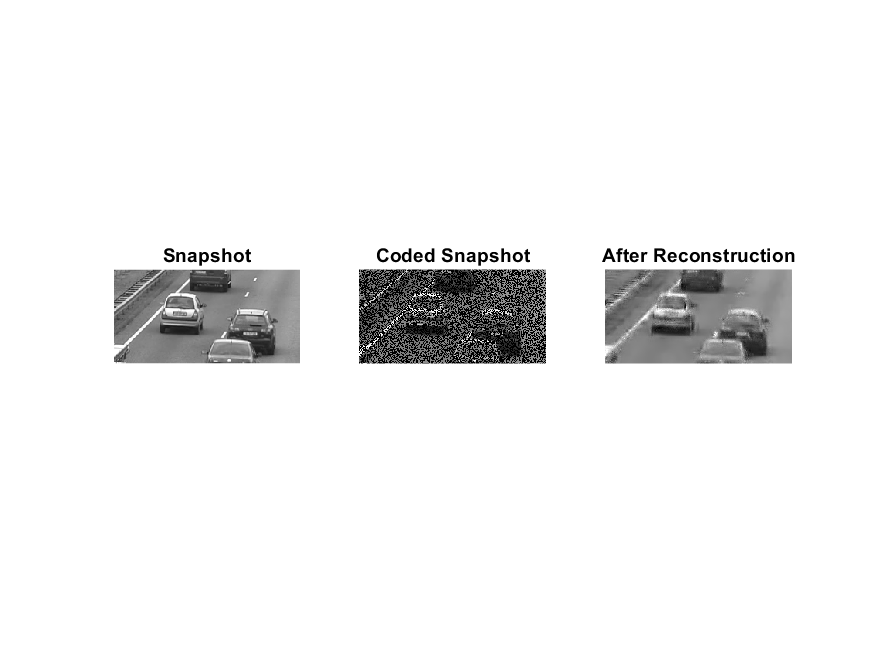
T = 5

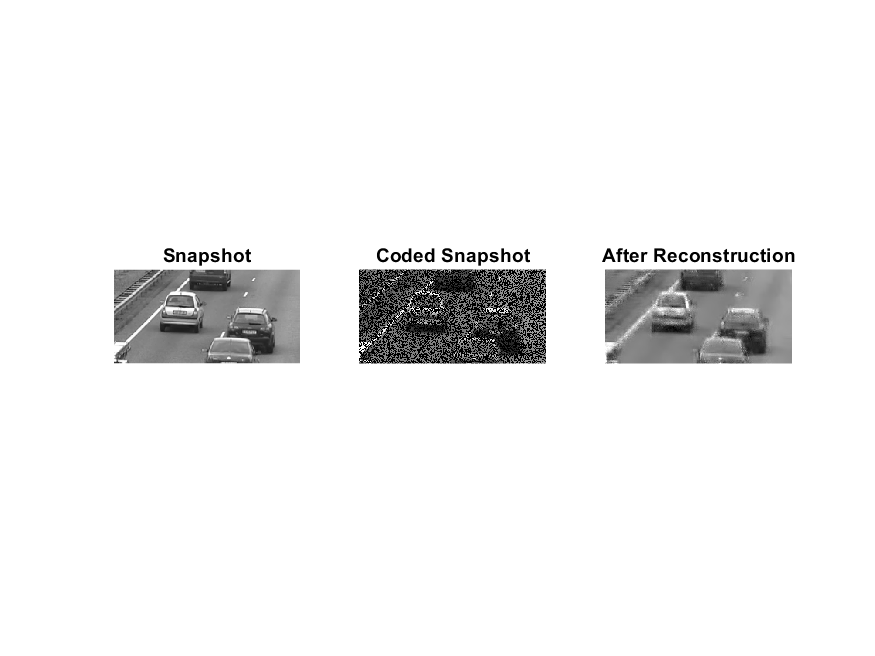




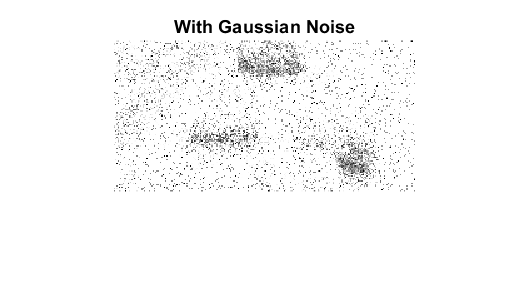


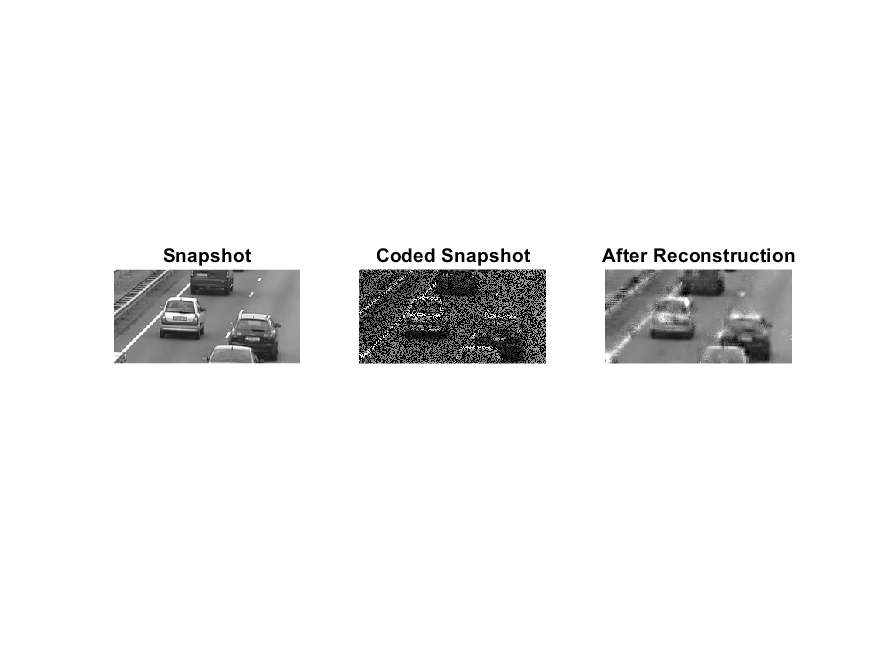


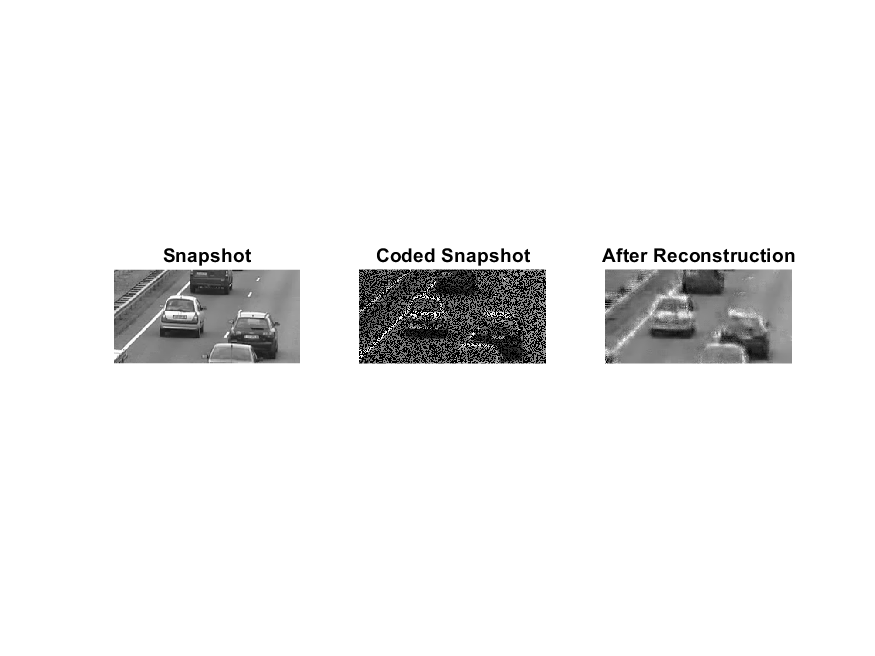


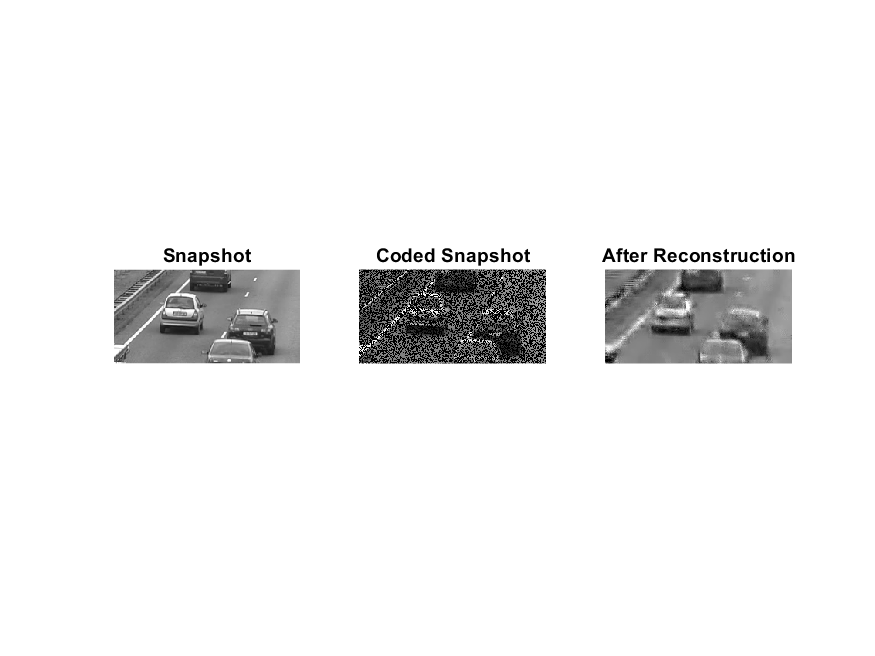
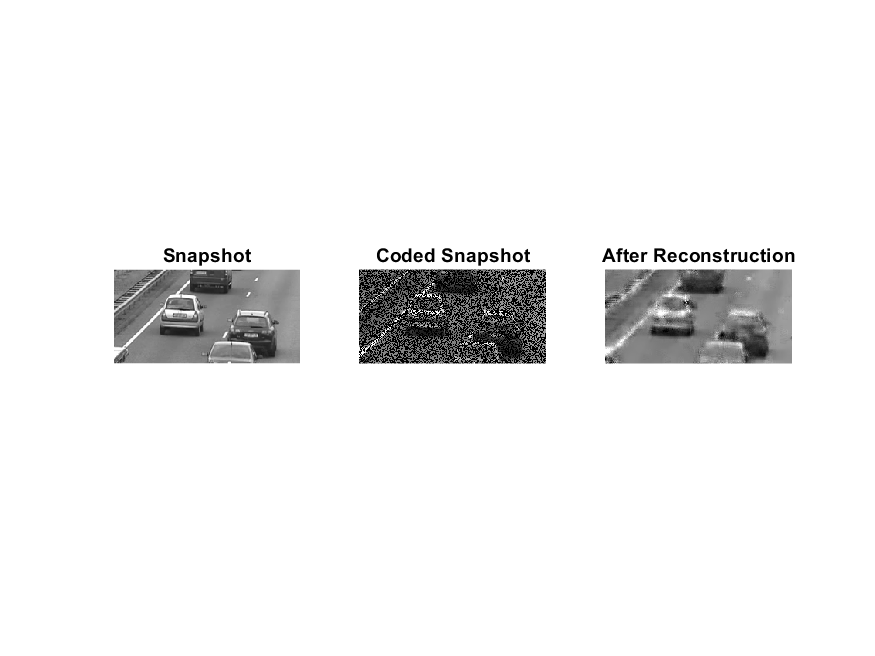


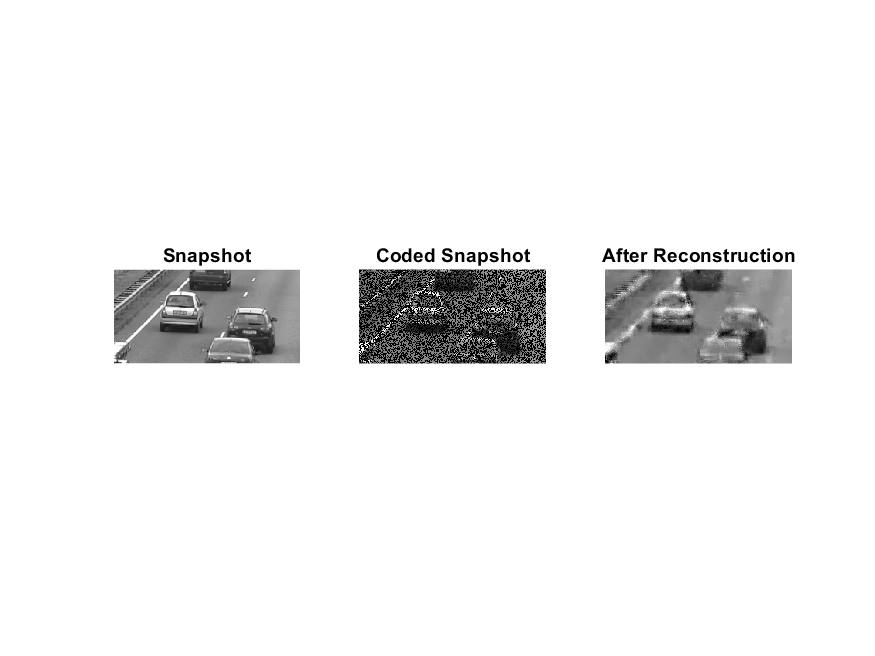
T = 7

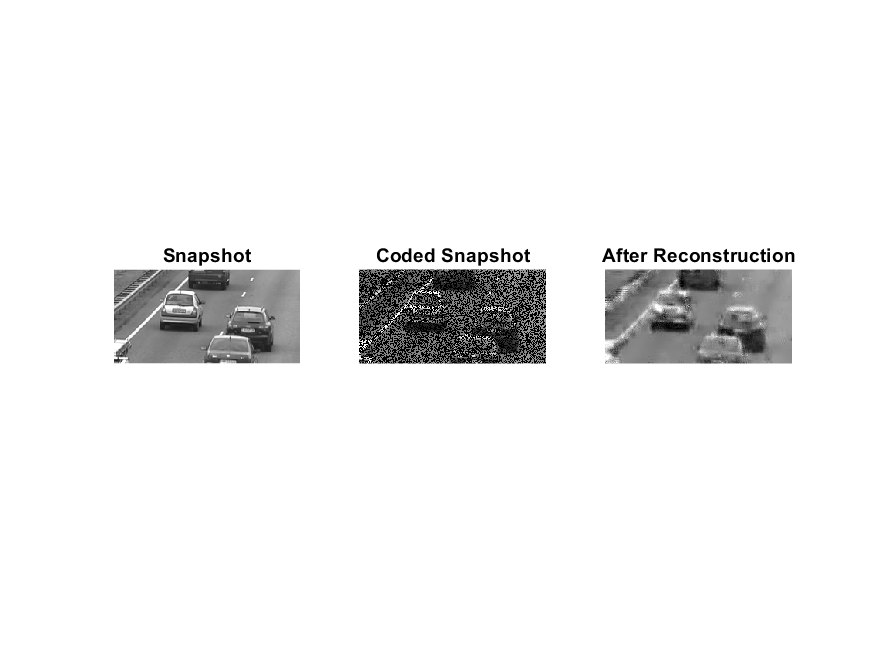


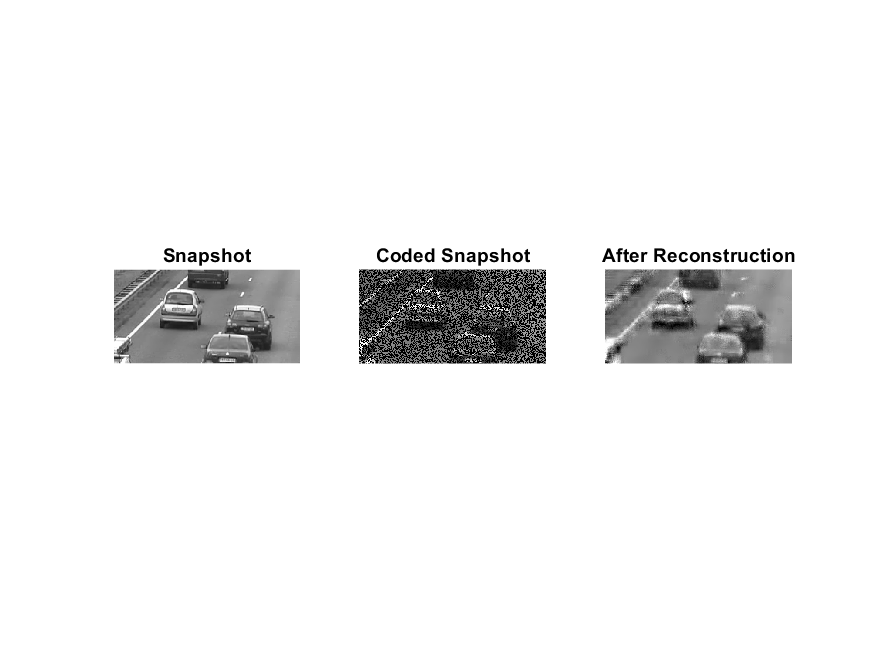












Explanation for **Ax = b:**

t

Eis the obtained image. We divide it into patches of 8\*8. Let E­ij (and similiarly for other matrices) be the patch with left corner at (i,j) coordinate.

Then t .

So, . Also , with being sparse.

Converting all products to matrix products :

Where Kronecker products are taken for forming 2-D DCT matrix diag(M) means putting all elements of the matrix along the diagonal row-first wise.

Explanation for error Term:

Consider **y = Φ\*f + η = Φ\*Ψ\*θ + η.** If for each i = 1 to m, **ηi** ~ N (0,), with known σ then the squared magnitude of the vector **η** is a chi-square random variable. Hence with very high probability, the magnitude of **η**will lie within 3 standard deviations from the mean, i.e. set ε ≥ 3\*σ\*√m.

Therefore, set ε = 3\*2\*8 = 48.

RMSE

T =3 - 0.1043

T =5 - 0.1371

T =7 - 0.1759

FLAMES

