Group 4:

COMPRESSED SENSING

Equations

$y = \Phi x$

$y = \Phi \Psi \alpha$

$x = \Psi \alpha$

Magnitudes

N The dimensionality (size) of the signal, e.g., pixels in an image.

K Sparsity of the signal x
$K \ll N$

M The dimensionality of the measurement
$K \leq M \ll N$

Variables

y The compressed measurement
A $M \times 1$ vector

Φ The sensing matrix
A $M \times N$ matrix

x The original signal
A $N \times 1$ vector

$\hat{x}$ The reconstructed signal
A $N \times 1$ vector

α The signal represented in a base in which it is sparse
A $N \times 1$ vector

Ψ Transformation matrix, that transforms the signal into a sparse base
A $N \times N$ matrix