

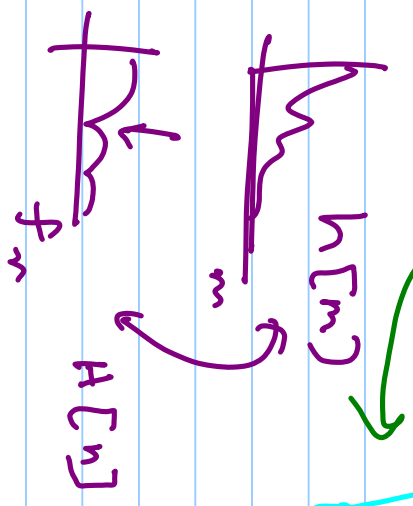
$$\bar{y} \xrightarrow{N \times 1} \bar{y} = h[m] \otimes \bar{x} + F_{H^T} \bar{v}$$

$\xleftarrow{\text{CIR}}$ $\xrightarrow{F_{H^T}}$

$$F \bar{y} = F \left(\underbrace{h[m]}_{Fh} \otimes \bar{x} \right) + F \bar{v}$$

\underbrace{Fh}_{I} $\underbrace{F}_{F_{H^T}}$

Free. Dynamic Measurement $\bar{y}_{N \times 1} = \bar{H}_{N \times N} \cdot \bar{d} + F \bar{v}$



"critical window"

$$\bar{y}_{N \times 1} = \bar{D} \bar{H}_{N \times 1} + \bar{V}$$

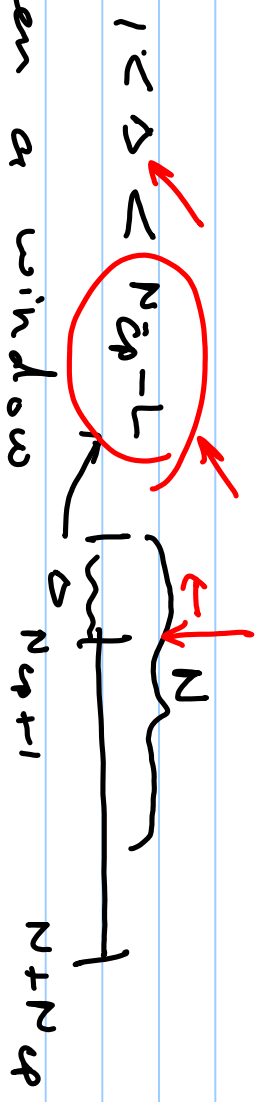
$\bar{D} = \begin{bmatrix} d(k_1) & 0 & \dots & 0 \\ 0 & d(k_2) & \dots & 0 \\ \vdots & \vdots & \ddots & \vdots \\ 0 & \dots & 0 & d(k_N) \end{bmatrix}$

$\bar{H}_{N \times 1} = [H(k_1, n_1) \dots H(k_N, n_N)]^T$

Scalar equation

$$y(k, n) = d(k, n) \cdot H(k, n) + V(k, n)$$

$n = 1 \dots N$



Suppose we had taken a window of samples before n_{sp+1} starting \rightarrow samples before n_{sp+1}

Exercise : $y[k, n] = H[k, n] e^{j \frac{2\pi}{N} \Delta n} \cdot d[k, n] + v[k, n]$

