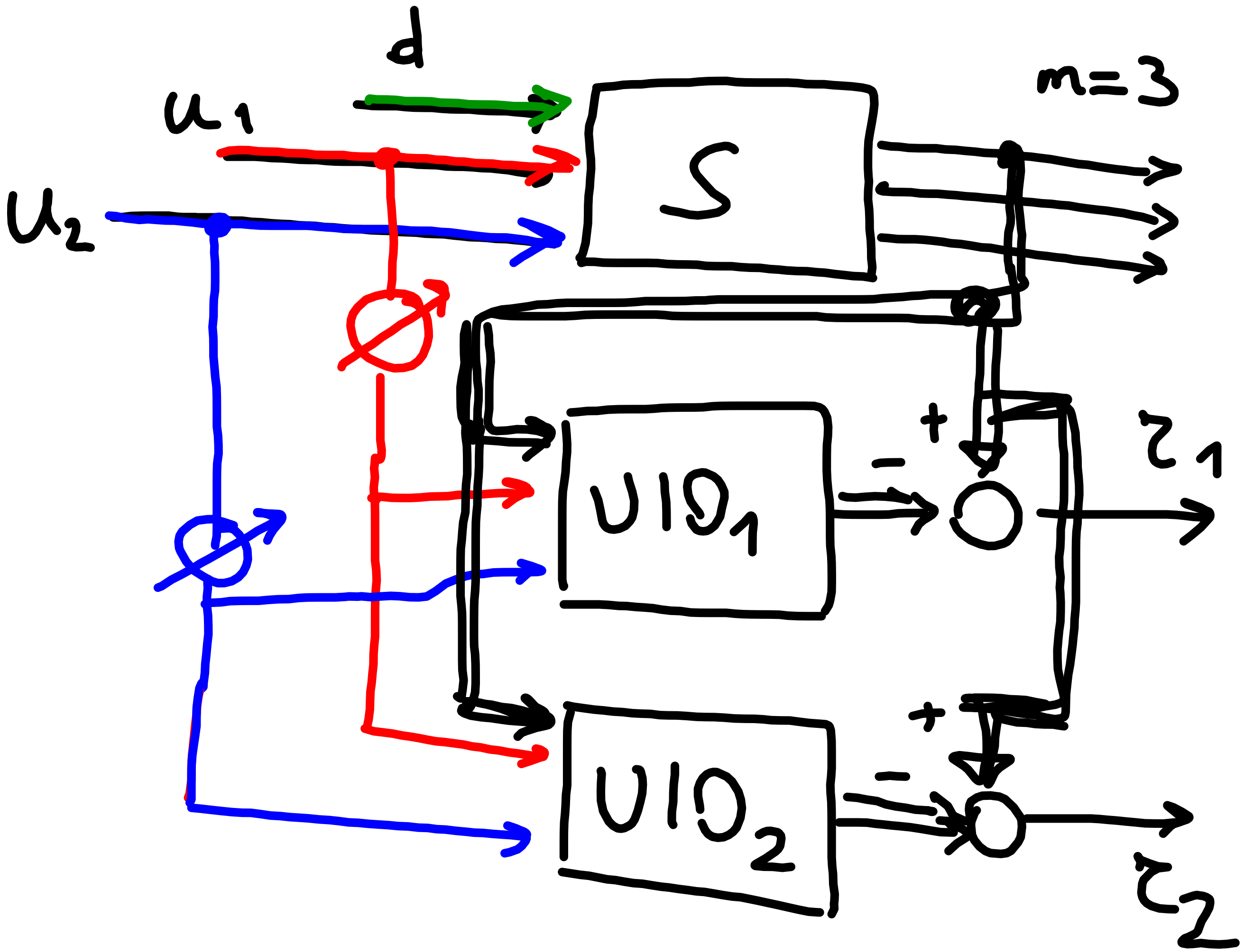

d
u_1
u_2
S
m=3
UIO_1
UIO_2
+
−
+
−
r_1
r_2

$$B = [b_1 \; b_2] \quad \begin{cases} x(t+1) = A\,x(t) + B\,u(t) + \cancel{E\,d}(t) \\ y(t) = C\,x(t) \end{cases}$$

$$E1 = [b_1 \; \cancel{E}]$$

UIO$_1$ - insensibile al primo ingresso u_1
- insensibile a $d(t)$

$$E2 = [b_2 \; \cancel{E}]$$

- insensibile a u_2

UIO$_2$ - Insensibile a $d(t)$

$$\begin{cases} z(t+1) = Fz(t) + \overbrace{TB}^{J}u(t) + Ky(t) \\ \hat{x}(t) = z(t) + Hy(t) \end{cases}$$

$$\begin{cases} z(t+1) = Fz(t) + \begin{bmatrix} TB \,\vdots\, K \end{bmatrix} \begin{bmatrix} u(t) \\ y(t) \end{bmatrix} \\ \hat{y} = C\hat{x}(t) + \underbrace{\begin{bmatrix} \underset{3\times 2}{0} \,\vdots\, H \end{bmatrix}}\begin{bmatrix} u(t) \\ y(t) \end{bmatrix} \end{cases}$$

$x(t+1) = Ax + Bu$

$y(t) = Cx + Du$

Kalman Filter

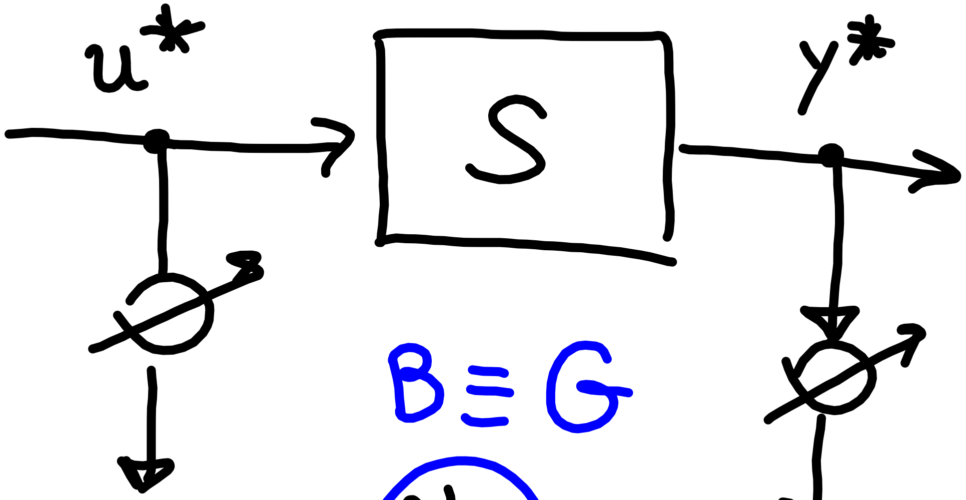
$$\begin{cases} x(t+1) = Ax(t) + Bu(t) + Gw(t) \\ \qquad + Bu^*(t) + B\tilde{u}(t) \\ y(t) = Cx(t) + v(t) \end{cases}$$

w: val. medio nullo e varianza Q

$$Q = E\left[w^T w\right]$$

v: val medio nullo e varianza

$$R = E\left[v^T v\right]$$



$B \equiv G$

$u = u^* + \tilde{u}$ $\quad$ $y = y^* + \tilde{y}$

$w(t)$ $\quad$ $v(t)$

Q $\quad$ R