where q & r are taken to be constants | "I" is unit matrix

$$P_1' = P_0 + (q \cdot I)$$

$$k_1 = \frac{P_1'}{x_1^T \cdot P_1' \cdot x_1 + r} \cdot x_1$$

$$P_1 = P_1' (1 - k_1 \cdot x_1^T)$$

$$f_1 = f_0 + k_1 [x_{1+p} - f_0^T \cdot x_1]$$

$$P_2' = P_1 + (q \cdot I)$$

$$k_2 = \frac{P_2'}{x_2^T \cdot P_2' \cdot x_2 + r} \cdot x_2$$

$$P_2 = P_2' (1 - k_2 \cdot x_2^T)$$

$$f_2 = f_1 + k_2 [x_{2+p} - f_1^T \cdot x_2]$$

where q & r are taken to be constants. "I" is unit matrix

OUTPUT IS:

$(M+1)(M+1)$ matrix

$$P_1' = P_0 + \underbrace{(q \cdot I)}_{\text{plant noise matrix}}$$

predicted covariance matrix

$(M+1)$ time series

$$k_1 = \frac{P_1'}{X_1^T \cdot P_1' \cdot X_1 + r} \cdot X_1$$

gain vector

$(M+1)(M+1)$ matrix

$$P_1 = P_1' \left(1 - k_1 \cdot X_1^T\right)$$

error-matrix updating (covariance matrix)

$(M+1)$ time series

this difference gives error

$$f_1 = f_0 + k_1 \left[X_{1+p} - f_0^T \cdot X_1\right]$$

convolution to single term

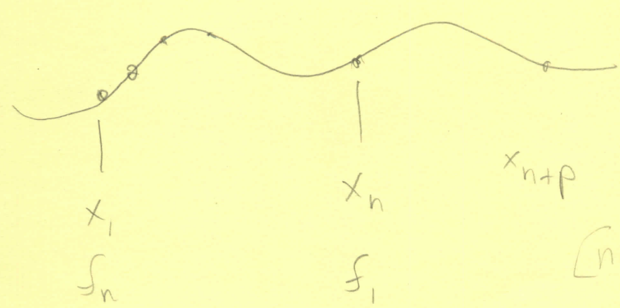
filter updating

$$P_2' = P_1 + (q \cdot I)$$

$$k_2 = \frac{P_2'}{X_2^T \cdot P_2' \cdot X_2 + r} \cdot X_2$$

$$P_2 = P_2' \left(1 - k_2 \cdot X_2^T\right)$$

$$f_2 = f_1 + k_2 \left[X_{2+p} - f_1^T \cdot X_2\right]$$



$n = 21 = \text{Impl}$
$p = 1$

$[n, r]\,[r, m]$

$(m+1, 1)\ (1, m+1)$