Kalman Filter (cont'd)

z_n ~ unknown state at time n

x_n ~ measurement of the state at time n

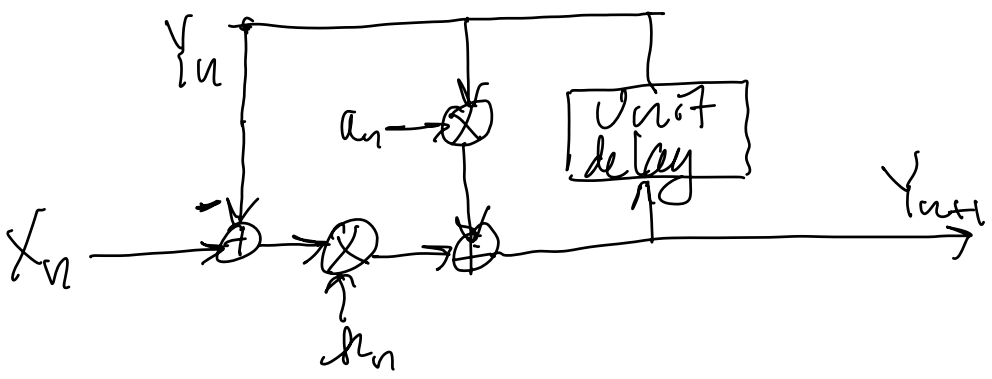
y_n ~ estimate of z_n (linear MMSE)

Kalman developed this recursive version of the KF:

$$y_{n+1} = a_n y_n + k_n (x_n - y_n)$$

- y_{n+1}: estimate of the state at time t_{n+1}
- a_n: state transition parameter
- $(x_n - y_n)$: "innovations sequence"

k_n is the "gain" of the filter



$$h_n = \frac{a_n \mathcal{E}_n^2}{\mathcal{E}_n^2 + E[N_n^2]}$$

$E[N_n^2]$ ← sensor noise power

End of material!

Yay!