KÁLMÁN-SZŰRŐ – lehetőleg legegyszerűbb felhívat

$$X_{t+1} = X_t + w_t \rightarrow X_{t+1} = X_t$$

$$z_{t+1} = X_t + v_t \sim N(0, \sigma_z)$$

$F=1$, $H=1$

$$\hat{X}_{t+1} = \hat{X}_t + K_{t+1}(z_{t+1} - \hat{X}_t)$$

$$\sigma_{t+1}^2 = (1 - K_{t+1})\sigma_t^2 \longrightarrow \searrow_t \rightarrow \phi$$

$$K_{t+1} = \sigma_t^2(\sigma_t^2 + \sigma_z^2)^{-1} = \frac{1}{1+\left(\frac{\sigma_z}{\sigma_t}\right)^2} \quad \left.\begin{matrix}\\ \\ \\ \\ \end{matrix}\right\} \downarrow \phi$$

$\uparrow \infty$

$$\hat{X}_{t+1} = \hat{X}_t + \frac{1}{1+\left(\frac{\sigma_z}{\sigma_t}\right)^2}(z_{t+1} - \hat{X}_t)$$

$$\sigma_{t+1}^2 = \underbrace{\frac{\left(\frac{\sigma_z}{\sigma_t}\right)^2}{1+\left(\frac{\sigma_z}{\sigma_t}\right)^2}}_{\gamma < 1}\sigma_t^2$$

JÓSLÁS – a jelenhez $\quad P(X_{t+1} \mid E_{1:t}) = \sum_{X_t} P(X_{t+1} \mid X_t) P(X_t \mid E_{1:t})$

Σ

$\langle 0.883; 0.117\rangle \langle 0.7; 0.3\rangle = \langle 0.6532; 0.3468\rangle$

$\langle 0.6532; 0.3468\rangle \langle 0.7; 0.3\rangle = \langle 0.5613; 0.4387\rangle$

$\langle 0.5613; 0.4387\rangle \langle 0.7; 0.3\rangle = \langle 0.5296; 0.4754\rangle$