$\lambda_{us} >> \sigma_{us}$

$$\vec{x}[k+1] = A\vec{x}[k]$$

$$A = \begin{bmatrix} \lambda_1 & \\ & \lambda_2 \end{bmatrix}$$

$\lambda_1 \sim \text{normal}(\lambda_{us}, \sigma_{us})$

$\lambda_2 \sim \text{normal}(\lambda_s, \sigma_s)$

stable

0.96

Edits

① fixed A

② Much larger system (some λ_i unstable, most λ_i stable)

③ Randomize subspace observation

④ Scalar input

$$\vec{x}_{k+1} = \begin{bmatrix} 1.2\pm0 & \\ & 0.960 \end{bmatrix} \vec{x}_k + \begin{bmatrix} 1 \\ 1 \end{bmatrix} u[k]$$

$u[k] = f^T \vec{x}[k]$

$u[k] = [f_1 \ f_2] \vec{x}_k$

$$\begin{bmatrix} \lambda_1 + f_1 & f_2 \\ f_1 & \lambda_2 + f_2 \end{bmatrix}$$

$$\vec{x}_{n+1} = \begin{bmatrix} \lambda_1 & 0 \\ 0 & \lambda_2 \end{bmatrix} \vec{x}_n + \begin{bmatrix} 1 \\ 1 \end{bmatrix} u_n$$

$\vec{x}_{n+1} =$

$$\vec{u}_n = \begin{bmatrix} u_{1n} \\ u_{2n} \end{bmatrix}$$

$\vec{u}_n = [F] \vec{x}_n$

$$\begin{bmatrix} f_1 & 0 \\ 0 & f_2 \end{bmatrix} \vec{x}_n$$