

Process
change:

$$\underbrace{d [\text{eta1}] (t)}_{d\boldsymbol{\eta}(t)} = \left(\underbrace{\begin{bmatrix} -1 \end{bmatrix}}_{\mathbf{A}} \underbrace{[\text{eta1}] (t)}_{\boldsymbol{\eta}(t)} + \underbrace{\begin{bmatrix} 0 \end{bmatrix}}_{\mathbf{b}} \right) dt + \underbrace{\left\{ \begin{bmatrix} 1 \end{bmatrix} \right\}}_{\mathbf{G}} \underbrace{d [W_1] (t)}_{d\mathbf{W}(t)}$$

Observations:

$$\underbrace{\begin{bmatrix} Y1 \\ Y2 \end{bmatrix} (t)}_{\mathbf{Y}(t)} = \underbrace{\begin{bmatrix} 1 \\ 0.97 \end{bmatrix}}_{\boldsymbol{\Lambda}} \underbrace{[\text{eta1}] (t)}_{\boldsymbol{\eta}(t)} + \underbrace{\begin{bmatrix} 0 \\ 1 \end{bmatrix}}_{\boldsymbol{\tau}} + \underbrace{\begin{bmatrix} 0.1 & 0 \\ 0 & 0.1 \end{bmatrix}}_{\boldsymbol{\Theta}} \underbrace{\begin{bmatrix} \epsilon_1 \\ \epsilon_2 \end{bmatrix} (t)}_{\boldsymbol{\epsilon}(t)}$$

Latent noise
per time step:

$$\Delta [W_{j \in [1,2]}] (t - u) \sim \text{N}(0, t - u)$$

Observation
noise:

$$[\epsilon_{j \in [1,2]}] (t) \sim \text{N}(0, 1)$$