

LQR uten integral function $t = 10-11$ s

Data 1 Brø

$$Q = \begin{bmatrix} 10 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 5 \end{bmatrix} \quad R = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

Data 2 Darbyee

$$Q = \begin{bmatrix} 10 \\ & 0,1 \\ & & 1 \end{bmatrix} \quad R = -1, -$$

Data 3 Vert - Pitch darby

$$Q = \begin{bmatrix} 10 \\ & 100 \\ & & 1 \end{bmatrix} \quad R = -1, -$$

Data 4

$$Q = \begin{bmatrix} 10 & & \\ & 1 & \\ & & 5 \end{bmatrix} \quad R = \begin{bmatrix} 0,1 & \\ & 1 \end{bmatrix}$$

Data 5

$$Q = -1, - \quad R = \begin{bmatrix} 1 & \\ & 0,5 \end{bmatrix}$$

Data 6

$$Q = \begin{bmatrix} 10 & & & \\ & 1 & & \\ & & 10 & \\ & & & 1 \end{bmatrix} \quad R = \begin{bmatrix} 1 & \\ & 1 \end{bmatrix}$$

Data 7 Velig responsur

$$Q = \begin{bmatrix} 10 & & & \\ & 1 & & \\ & & 10 & \\ & & & 100 \end{bmatrix} \quad R = -1, -$$

Data 8 Darlig - ikke opp til linearisering ++

$$Q = \begin{bmatrix} 10 & & & \\ & 1 & & \\ & & 10 & \\ & & & 5 \end{bmatrix} \quad R = -1, -$$

Hvenberger

Data 9 Trøig, fall vakk fra linearisering

$$p = [1 -1 -2 -2 -3]$$

Data 10 Bedre

$$p = [-1 1 2 20 3]$$

Data 11 Bedre

$$p = [-10 10 20 20 30]$$

Data 12 Bedre, overshoot?

$$p = [-10 10 20 20 30]$$

Data 13 Ustabilt

$$p = [-100 100 200 200 300]$$

Data 14 - Rett i fullt pådrag

$$p = [1 1 2 2 3]$$

Diskret Kalman

Data 15 Brø

$$Q = \text{eye}(6) \cdot 10^{-4}$$

Data 16 $\textcircled{1} \ll R \Rightarrow$ Stoler på est.

$$Q = 10^{-6}$$

$$Q \gg R \quad \text{Brø}$$

Data 17

$$Q = 10^{-2}$$

$$Q \gg R \quad \text{Brø}$$

Data 18

$$Q = 1$$

$$Q \gg R$$

Brø ?

Data 19

$$Q = 10^2$$

Data output Luenberger

$$\text{gyro.} = \begin{bmatrix} \lambda \\ i \\ p \\ p_e \\ e \\ e \end{bmatrix}$$

$$\text{tot} = \begin{bmatrix} \bar{\text{gyro}} \\ \text{cryptek} \\ \text{IMU} \\ \text{est} \end{bmatrix}$$

$$\text{IMU} = \begin{bmatrix} p \\ \dot{p} \\ e \\ \dot{e} \\ \ddot{e} \\ \ddot{\lambda} \end{bmatrix}$$

$$\text{est} = \begin{bmatrix} \hat{\lambda} \\ \hat{p} \\ \hat{p}_e \\ \hat{e} \\ \hat{e}_e \\ \hat{i} \end{bmatrix}$$



Data 20 +

$$\begin{bmatrix} \text{Gyro} \\ \text{Disturbance} \end{bmatrix}$$