E. Canuto, C. Novara, L. Massotti, C. Perez Montenegro, D. Carlucci, Spacecraft Dynamics and Control. the Embedded Model Control approach, Butterworth-Heinemann (Elsevier), 2018

Chapter 8

Erratum page 417

$$\begin{bmatrix} \theta \\ \Delta\theta \\ d_1 \\ d_2 \end{bmatrix}(i+1) = \begin{bmatrix} 1-\beta & 1 & 1 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} \theta \\ \Delta\theta \\ d_1 \\ d_2 \end{bmatrix}(i) + \begin{bmatrix} 0 \\ b_{nom} \\ 0 \\ 0 \end{bmatrix} I_u(i) + \begin{bmatrix} 0 \\ w_u \\ w_1 \\ w_2 \end{bmatrix}(i), \qquad (8.84)$$

$$\breve{\theta}(i) = \theta + \tilde{\theta}_m$$

where $b_{nom} = \underline{H}_{s,nom} F_{u,nom} T^2 / J_{nom}$ $[\text{rad/A}]$ is the known command gain, $\Delta\theta \cong \omega_u T$ is an angle, …

Corrigendum

$$\begin{bmatrix} \theta \\ \Delta\theta \\ d_1 \\ d_2 \end{bmatrix}(i+1) = \begin{bmatrix} 1-\beta_{nom} & 1 & 1 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} \theta \\ \Delta\theta \\ d_1 \\ d_2 \end{bmatrix}(i) + \begin{bmatrix} 0 \\ b_{nom} \\ 0 \\ 0 \end{bmatrix} I_u(i) + \begin{bmatrix} 0 \\ w_u \\ w_1 \\ w_2 \end{bmatrix}(i), \qquad (8.84)$$

$$\breve{\theta}(i) = \theta + \tilde{\theta}_m$$

where $\beta_{nom} = T / \tau_{g,nom}$, $b_{nom} = \underline{H}_{s,nom} F_{u,nom} T^2 / J_{nom}$ $[\text{rad/A}]$ is the known command gain, $\Delta\theta \cong \omega_u T$ is an angle, …

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$$\hat{\varphi}(i) = \frac{J_{nom}}{\underline{H}_{s,nom} T} \quad . \qquad (8.86)$$

Corrigendum

$$\hat{\varphi}(i) = \frac{J_{nom}}{\underline{H}_{s,nom} T} \hat{d}_1(i) \quad . \qquad (8.86)$$

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$$H = \begin{bmatrix} 1 & 0 \\ 0 & 0 \end{bmatrix}, \; A_d = \begin{bmatrix} 1 & 1 \\ 0 & 1 \end{bmatrix}, \; A = \begin{bmatrix} 1-\beta & 1 \\ 0 & 1 \end{bmatrix}, \; B = \begin{bmatrix} 0 \\ 1 \end{bmatrix}, \; C = \begin{bmatrix} 1 & 0 \end{bmatrix}$$
$$Q = \begin{bmatrix} q_{11} & q_{12} \\ q_{21} & q_{22} \end{bmatrix}, \; P = \begin{bmatrix} p_1 & p_2 \end{bmatrix} \qquad (8.88)$$

Corrigendum

$$H=\begin{bmatrix}1 & 0\\ 0 & 0\end{bmatrix},\ A_d=\begin{bmatrix}1 & 1\\ 0 & 1\end{bmatrix},\ A=\begin{bmatrix}1-\beta_{nom} & 1\\ 0 & 1\end{bmatrix},\ B=\begin{bmatrix}0\\ 1\end{bmatrix},\ C=\begin{bmatrix}1 & 0\end{bmatrix}$$
$$Q=\begin{bmatrix}q_{11} & q_{12}\\ q_{21} & q_{22}\end{bmatrix},\ P=\begin{bmatrix}p_1 & p_2\end{bmatrix} \tag{8.88}$$

Erratum Table 8.3 row 2

Table 1. RIG in closed-loop mode: simulated parameters.					
No	Parameter	Symbol	Unit	Value	Comment
1	Moment of inertia	J	Kgm^2	3×10^{-6}	None
2	Time constant	τ_g	Ms	1.5	None

Corrigendum

Table 2. RIG in closed-loop mode: simulated parameters.					
No	Parameter	Symbol	Unit	Value	Comment
1	Moment of inertia	J	kgm^2	3×10^{-6}	None
2	Time constant	τ_g	ms	1.5	None

Erratum, page 427, item 3, fourth row (August 19, 2019)

Same, page 428, two rows above (8.109)

$\Delta\breve{\phi}=\breve{\phi}_r-\breve{\phi}_r$ of ….

Taking the difference $\Delta\breve{\phi}=\breve{\phi}_r-\breve{\phi}_r$ and …

Corrigendum

$\Delta\breve{\phi}=\breve{\phi}_r-\breve{\phi}_s$ of ….

Taking the difference $\Delta\breve{\phi}=\breve{\phi}_r-\breve{\phi}_s$ and …