

# Errata, Iterative Learning Control: Analysis, Design, and Experiments

## Typos

Page	Line	In thesis	Should be
16	-3	(3.1a)	(3.1)
35	-7	$ \mathbf{z}_{k+1}  <  \mathbf{z}_k $	$\ \mathbf{z}_{k+1}\  < \ \mathbf{z}_k\ $
36	-2	$ \mathbf{F}_M \mathbf{F}_{M-1} \dots \mathbf{F}_1 \mathbf{z}_0  \leq \gamma \bar{\rho}^M  \mathbf{z}_0 $	$\ \mathbf{F}_M \mathbf{F}_{M-1} \dots \mathbf{F}_1 \mathbf{z}_0\  \leq \gamma \bar{\rho}^M \ \mathbf{z}_0\ $
53	Figure caption	$ Q^{-1}(e^{i\omega}) $	$ Q^{-1}(e^{i\omega}) $
59	Figure caption	$V_k$	$V(\mathbf{z}_k)$
204	9	$d_k(t) = \nu_d(t)$	$n_k(t) = \nu_n(t)$
204	(14.5)	$\mathbf{z}_{k+1} = \mathbf{z}_k - \mathbf{G}^0(\mathbf{u}_{k+1} - \mathbf{u}_k) + \Delta_{d_k}$	$\mathbf{z}_{k+1} = \mathbf{z}_k + \mathbf{G}^0(\mathbf{u}_{k+1} - \mathbf{u}_k) + \Delta_{d_k}$
204	(14.7)	$\mathbf{z}_{k+1} = \mathbf{z}_k - \mathbf{G}(\mathbf{u}_{k+1} - \mathbf{u}_k) - \mathbf{G}\Delta_G(\mathbf{u}_{k+1} - \mathbf{u}_k) + \Delta_{d_k}$	$\mathbf{z}_{k+1} = \mathbf{z}_k + \mathbf{G}(\mathbf{u}_{k+1} - \mathbf{u}_k) + \mathbf{G}\Delta_G(\mathbf{u}_{k+1} - \mathbf{u}_k) + \Delta_{d_k}$
205	(14.8),(14.11a)	$\hat{\mathbf{z}}_{k+1} = \hat{\mathbf{z}}_k - \mathbf{G}(\mathbf{u}_{k+1} - \mathbf{u}_k) + \mathbf{K}_k(\mathbf{y}_k - \hat{\mathbf{z}}_k)$	$\hat{\mathbf{z}}_{k+1} = \hat{\mathbf{z}}_k + \mathbf{G}(\mathbf{u}_{k+1} - \mathbf{u}_k) + \mathbf{K}_k(\mathbf{y}_k - \hat{\mathbf{z}}_k)$
206	9	(14.3)	(14.1)
206	-8	$\mathbf{u}_k^* = (\mathbf{G}^0)^{-1} \mathbf{d}_k$	$\mathbf{u}_k^* = -(\mathbf{G}^0)^{-1} \mathbf{d}_k$
207	(14.18)	$\mathbf{u}_{k+1} = (\mathbf{W}_u + \mathbf{W}_{\Delta u} - \mathbf{G}^T \mathbf{W}_z \mathbf{G})^{-1} ((\mathbf{W}_{\Delta u} - \mathbf{G}^T \mathbf{W}_z \mathbf{G}) \mathbf{u}_k - \mathbf{G}^T \mathbf{W}_z ((\mathbf{I} - \mathbf{K}_k) \hat{\mathbf{z}}_k + \mathbf{K}_k \mathbf{y}_k))$	$\mathbf{u}_{k+1} = (\mathbf{W}_u + \mathbf{W}_{\Delta u} + \mathbf{G}^T \mathbf{W}_z \mathbf{G})^{-1} ((\mathbf{W}_{\Delta u} + \mathbf{G}^T \mathbf{W}_z \mathbf{G}) \mathbf{u}_k - \mathbf{G}^T \mathbf{W}_z ((\mathbf{I} - \mathbf{K}_k) \hat{\mathbf{z}}_k + \mathbf{K}_k \mathbf{y}_k))$
207	(14.18)	$\hat{\mathbf{z}}_{k+1} = \hat{\mathbf{z}}_k - \mathbf{G}(\mathbf{u}_{k+1} - \mathbf{u}_k) + \mathbf{K}_k(\mathbf{y}_k - \hat{\mathbf{z}}_k)$	$\hat{\mathbf{z}}_{k+1} = \hat{\mathbf{z}}_k + \mathbf{G}(\mathbf{u}_{k+1} - \mathbf{u}_k) + \mathbf{K}_k(\mathbf{y}_k - \hat{\mathbf{z}}_k)$
207	-15	(14.17) and (14.18)	(14.18) and (14.19)
207	(14.20)	$\mathbf{u}_{k+1} = (\mathbf{I} - (\mathbf{I} + \mathbf{W}_u^{-1} \mathbf{G}^T \mathbf{W}_z \mathbf{G})^{-1} \mathbf{K}_k) \mathbf{u}_k + \mathbf{W}_u^{-1} \mathbf{G}^T \mathbf{W}_z (\mathbf{I} + \mathbf{G} \mathbf{W}_u^{-1} \mathbf{G}^T \mathbf{W}_z)^{-1} \mathbf{K}_k \mathbf{y}_k$	$\mathbf{u}_{k+1} = (\mathbf{I} - (\mathbf{I} + \mathbf{W}_u^{-1} \mathbf{G}^T \mathbf{W}_z \mathbf{G})^{-1} \mathbf{K}_k) \mathbf{u}_k - \mathbf{W}_u^{-1} \mathbf{G}^T \mathbf{W}_z (\mathbf{I} + \mathbf{G} \mathbf{W}_u^{-1} \mathbf{G}^T \mathbf{W}_z)^{-1} \mathbf{K}_k \mathbf{y}_k$
208	1	(14.15)	(14.17)
208	3	$K_K$	$K_k$
208	6	$\mathbf{u}_{k+1} = (\mathbf{I} - (\mathbf{I} + \zeta \mathbf{G}^T \mathbf{G})^{-1} \kappa_k) \mathbf{u}_k + \zeta \kappa_k \mathbf{G}^T (\mathbf{I} + \zeta \mathbf{G} \mathbf{G}^T)^{-1} \mathbf{y}_k$	$\mathbf{u}_{k+1} = (\mathbf{I} - (\mathbf{I} + \zeta \mathbf{G}^T \mathbf{G})^{-1} \kappa_k) \mathbf{u}_k - \zeta \kappa_k \mathbf{G}^T (\mathbf{I} + \zeta \mathbf{G} \mathbf{G}^T)^{-1} \mathbf{y}_k$
208	(14.21)	$\mathbf{u}_{k+1} \approx \mathbf{u}_k + \kappa_k \mathbf{G}^{-1} \mathbf{y}_k$	$\mathbf{u}_{k+1} \approx \mathbf{u}_k - \kappa_k \mathbf{G}^{-1} \mathbf{y}_k$
209	9	$\mathbf{u}_{k+1} = \mathbf{u}_k + \frac{\mathbf{G}^{-1}}{k+1} \mathbf{y}_k$	$\mathbf{u}_{k+1} = \mathbf{u}_k - \frac{\mathbf{G}^{-1}}{k+1} \mathbf{y}_k$
209	(14.24)	$\mathbf{z}_{k+1} = \mathbf{z}_k - \mathbf{G}(\mathbf{u}_{k+1} - \mathbf{u}_k) - \mathbf{G}\Delta_G(\mathbf{u}_{k+1} - \mathbf{u}_k) + \Delta_{d_k}$	$\mathbf{z}_{k+1} = \mathbf{z}_k + \mathbf{G}(\mathbf{u}_{k+1} - \mathbf{u}_k) + \mathbf{G}\Delta_G(\mathbf{u}_{k+1} - \mathbf{u}_k) + \Delta_{d_k}$
210	Step 5(a)	$\mathbf{u}_0 = \mathbf{W}_u^{-1} \mathbf{G}^T \mathbf{W}_z \hat{\mathbf{z}}_0$	$\mathbf{u}_0 = -\mathbf{W}_u^{-1} \mathbf{G}^T \mathbf{W}_z \hat{\mathbf{z}}_0$
210	Step 5(c)	$\mathbf{u}_{k+1} = \mathbf{W}_u^{-1} \mathbf{G}^T \mathbf{W}_z \hat{\mathbf{z}}_{k+1}$	$\mathbf{u}_{k+1} = -\mathbf{W}_u^{-1} \mathbf{G}^T \mathbf{W}_z \hat{\mathbf{z}}_{k+1}$
213	Step 1	$u_0(t) = \zeta W_u^{-1}(q) G(q^{-1}) \hat{z}_0(t)$	$u_0(t) = -\zeta W_u^{-1}(q) G(q^{-1}) \hat{z}_0(t)$
213	Step 3	$u_{k+1}(t) = \zeta W_u^{-1}(q) G(q^{-1}) \hat{z}_{k+1}(t)$	$u_{k+1}(t) = -\zeta W_u^{-1}(q) G(q^{-1}) \hat{z}_{k+1}(t)$
215	Step 1	$u_0(t) = \zeta W_u^{-1}(q) G(q^{-1}) \hat{z}_0(t)$	$u_0(t) = -\zeta W_u^{-1}(q) G(q^{-1}) \hat{z}_0(t)$
215	Step 3	$u_{k+1}(t) = \zeta W_u^{-1}(q) G(q^{-1}) \hat{z}_{k+1}(t)$	$u_{k+1}(t) = -\zeta W_u^{-1}(q) G(q^{-1}) \hat{z}_{k+1}(t)$
216	-14	$\hat{\mathbf{z}}_{k+1} = (\mathbf{I} - \kappa_k (\mathbf{I} + \tilde{\mathbf{F}})) \hat{\mathbf{z}}_k + (\mathbf{I} + \mathbf{G} \mathbf{W}_u^{-1} \mathbf{G}^T \mathbf{W}_z)^{-1} \kappa_k (\mathbf{d}_k + \mathbf{n}_k)$	$\hat{\mathbf{z}}_{k+1} = (\mathbf{I} - \kappa_k (\mathbf{I} + \tilde{\mathbf{F}})) \hat{\mathbf{z}}_k + (\mathbf{I} + \mathbf{G} \mathbf{W}_u^{-1} \mathbf{G}^T \mathbf{W}_z)^{-1} \kappa_k (\mathbf{d}_k + \mathbf{n}_k)$
216	-12	$\tilde{\mathbf{F}} = (\mathbf{I} + \mathbf{G} \mathbf{W}_u^{-1} \mathbf{G}^T \mathbf{W}_z)^{-1} \mathbf{G} \Delta_G \mathbf{W}_u^{-1} \mathbf{G}^T \mathbf{W}_z$	$\tilde{\mathbf{F}} = (\mathbf{I} + \mathbf{G} \mathbf{W}_u^{-1} \mathbf{G}^T \mathbf{W}_z)^{-1} \mathbf{G} \Delta_G \mathbf{W}_u^{-1} \mathbf{G}^T \mathbf{W}_z$