Chapter 1:

- p. 10: Caption should be "reference velocity (mph)".

Chapter 2:

- p. 29, fig 2.10: α and β need to be swapped.
- p. 35: it does *get* smaller.

Chapter 3:

- p. 57: footnote 15, $\partial u/\partial y = -\partial v/\partial x$.
- p. 66, eq (3.33):

$$\frac{G^{(m-1)}(s_0)}{(m-1)!} = \frac{1}{(m-1)!}\lim_{s\to s_0}\frac{d^{m-1}}{ds^{m-1}}\Big((s-s_0)^m F(s)\, e^{st}\Big) = \Big(k_{0,1}t^{m-1} + k_{0,2}t^{m-2} + \cdots + k_{0,m}\Big)\, e^{s_0 t}$$

- p. 66, eq (3.34):

$$k_{0,j} = \frac{1}{(m-j)!(j-1)!}\lim_{s\to s_0}\frac{d^{j-1}}{ds^{j-1}}(s-s_0)^m F(s), \qquad j = 1,\ldots,m.$$

- p. 67: $k_{2,1}t + k_{2,2}$ and swap labels for $k_{2,2}$ and $k_{2,1}$
- p. 69, above eq (3.40): $|y(t)| \le \int_{0^-}^{t} |g(\tau)||u(t-\tau)|d\tau \le M_u \int_{0^-}^{t} |g(\tau)|d\tau$
- p. 70, below $u_T(t)$: is such that $|u_T(t)| \le 1$ and

$$y_T(T) = \int_{0^-}^{T} g(T-\tau)\, u_T(\tau)\, d\tau = \int_{0^-}^{T} |g(\tau)|\, d\tau$$

  which becomes arbitrarily close to $\|g\|_1$ when T is made large.
- p. 71: $y_{\mathrm{tr}}(t) = y_-(t) = \mathcal{L}^{-1}\{Y_-(s)\}$
- **P3.32**: $|G(j\omega)|^2$
- **P3.89**: $\tilde{v} = 1V$
- **P3.103**: $w = 0$

Chapter 4:

- p. 114: $z = SGKF\bar{y} + SFv + SGFw$
- **P4.37**: to P4.29 and P4.35.
- **P4.42**: $w(t)(T_i - T(t)) \approx w(t)T_i - \bar{w}T(t)$.

Chapter 5:

- p. 126, first paragraph of 5.1: "is the result of"
- p. 137: add footnote on semidefinite: bounded and non-negative.
- p. 148: m_t -> m_c $g(m_t + m_t)r$ -> $gJm_r r$
- **P5.6**: $J_p = m_p \ell^2/12$, $g = 10\text{m/s\^{}2}$.
- **P5.25**: $\theta = 0$. Repeat for $\theta = \pi/6$.
- **P5.38**: ...its maximum power with a flow

  $$w(t) = \frac{\bar{w}}{2}\left(1 + \cos(\omega t)\right)$$

  where $\bar{w} = 20$ gal/h ($\approx 21 \times 10^{-6}\text{m}^3/\text{s}$) at ambient temperature and $\omega = 2\pi/24\text{h}^{-1}$. Assume that the system is at equilibrium when $T_o = T_i = 77°\text{F}(\approx 25°\text{C})$, $T = \bar{T} = 140°\text{F}(\approx 60°\text{C})$ and $w = \bar{w}$. Calculate the resulting closed-loop time-constant in hours and compare your answer with the open-loop time-constant. Is the closed-loop capable of asymptotically tracking a constant reference temperature $\bar{T}(t) = \bar{T}$, $t \geq 0$? Use MATLAB to simulate the closed-loop response using the nonlinear model from P5.36. Plot the temperature...
- **P5.48**: $x_1(0) = 9, x_2(0) = 1$.

Chapter 6:

- p. 168: $100e^{-1}$ -> $100(1 - e^{-1})$
- p. 175: below eq. 6.18 "introducing" instead of "introducting".
- **P6.9**:

  $$u = K\,e, \qquad\qquad e = r - \theta.$$

  Show that $(\bar{\theta}, \bar{r}) = (0, 0)$ and $(\bar{\theta}, \bar{r}) = (\pi, \pi)$ are still equilibrium points. Linearize the closed-loop system linearized about $(\bar{\theta}, \bar{r}) = (0, 0)$ and $(\bar{\theta}, \bar{r}) = (\pi, 0)$ and calculate the associated transfer-function. Assuming all constants are positive, find the range of values of K that stabilize both equilibrium points.
- **P6.36**: $w(t)(T_i - T(t)) \approx w(t)T_i - \bar{w}T(t)$.