

Handlebar Torque Subroutines

Smooth bend from 0 to N, risetime Δt , start decrease at time T1, finish decrease at T1+ Δt .

$$N_{fl}(t, \Delta T_N, N) := 3 \cdot N \cdot \left[\left(\frac{t}{\Delta T_N} \right)^2 - \frac{2}{3} \cdot \left(\frac{t}{\Delta T_N} \right)^3 \right]$$

Starting from A_s , go to A_m , decrease to A_e

$$N1_f(t, N_s, N_m, N_e) := \text{if} \left[t < \Delta T_N, N_s + N_{fl}(t, \Delta T_N, N_m - N_s), \text{if} \left[t < T_{N1}, N_m, \text{if} \left[t < T_{N1} + \Delta T_N, (N_m + N_{fl}(t - T_{N1}, \Delta T_N, N_e - N_m)), N_e \right] \right] \right]$$

Start from 0, go to N1, stay at N2, go to N3 at TN2, and end at 0

$$N_{sf}(t) := \text{if} (t < T_{N2}, N1_f(t, 0, N1, N2), N1_f(t - T_{N2}, N2, N3, 0))$$