These are the settings I used to create the “best” condition. Rather than setting different Kp and Ki values for each of the 6 components of the gain matrices, I kept the Kp and Ki matrices as identity matrices and then multiplied them by the gains listed below to give each component of the matrix the same feedback gain for simplicity.

Controller Type: Feedforward + PI

Feedback Gains: Kp = 3, Ki = 0.6

The feedforward +PI controller with the given feedback gains seems to exhibit a fairly optimal behavior which is smooth and avoids overshoot. The error in the end effector’s position quickly falls to 0 within the first few seconds of the program and stays there.