

CS685 Homework 2

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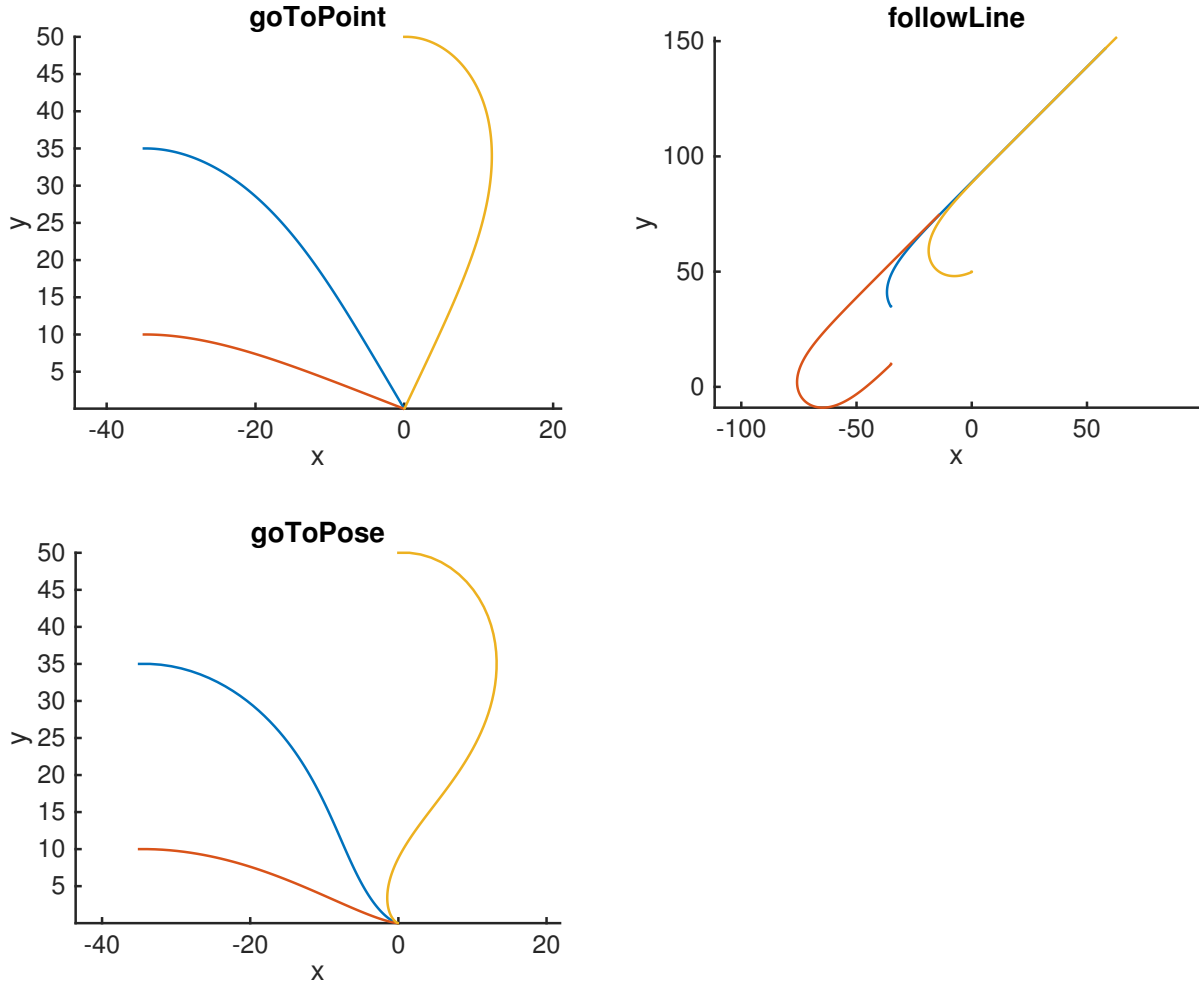


Figure 1: Start at $(-35, 35), (-35, 10), (0, 50)$, initial orientation is all 0, goal is $(0, 0)$, $\delta = 0.01$. GoToPoint $K_v = 1$, $K_h = 4$. followLine $K_d = 1$, $K_h = 10$. goToPose $K_\rho = 3$, $K_\alpha = 8$, $K_\beta = -1.5$.

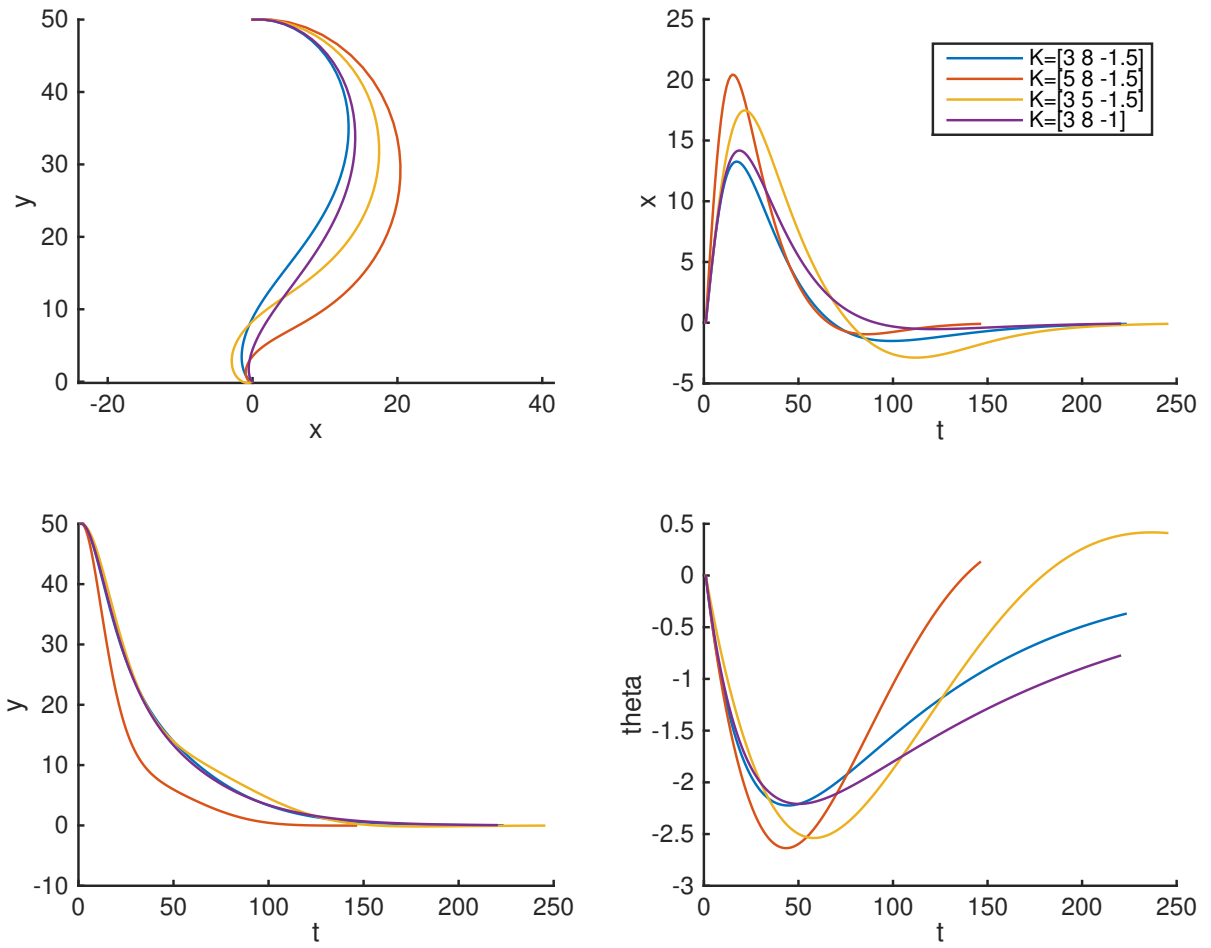


Figure 2: goToPose with different parameters, start at (0,50), initial orientation is 0, goal is (0,0). $[K_\rho \ K_\alpha \ K_\beta]$ is shown in legend, $\delta = 0.01$.

Observations Large K_ρ and K_α will make the robot over reach goal faster, but also increase overshoot. Larger K_β will decrease overshoot, but make it harder for robot to position it self near the goal.

Goal was reached if ρ is less than certain threshold.

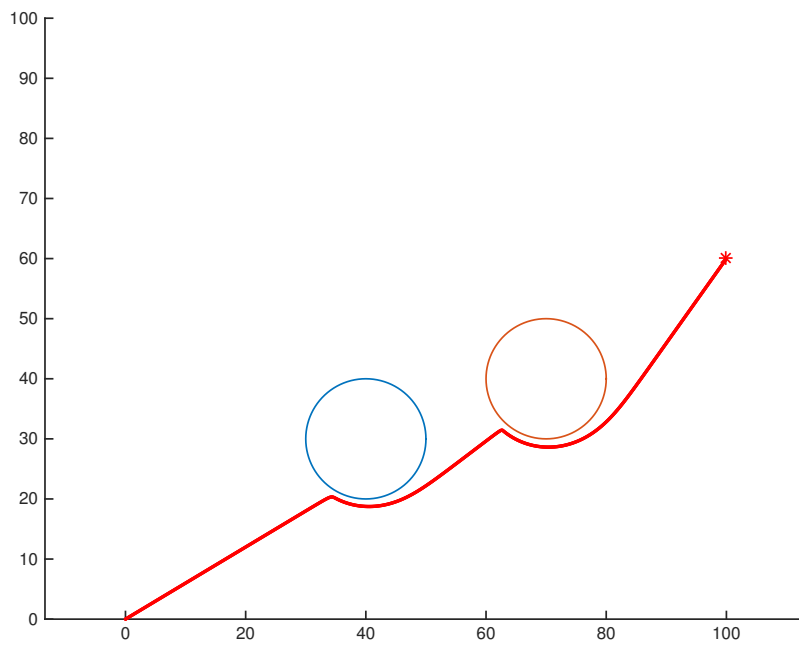


Figure 3: goToAvoid, $\xi = 1$, $\rho_0 = 8$, $v = 100$, $\delta = 0.1$