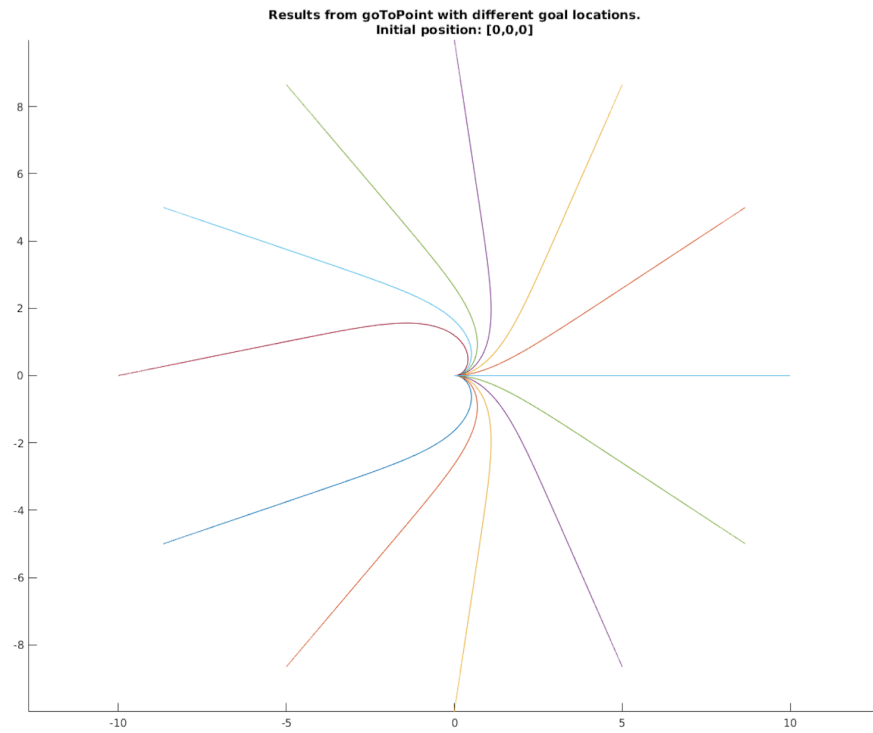# Homework 2

Yongxin Wang

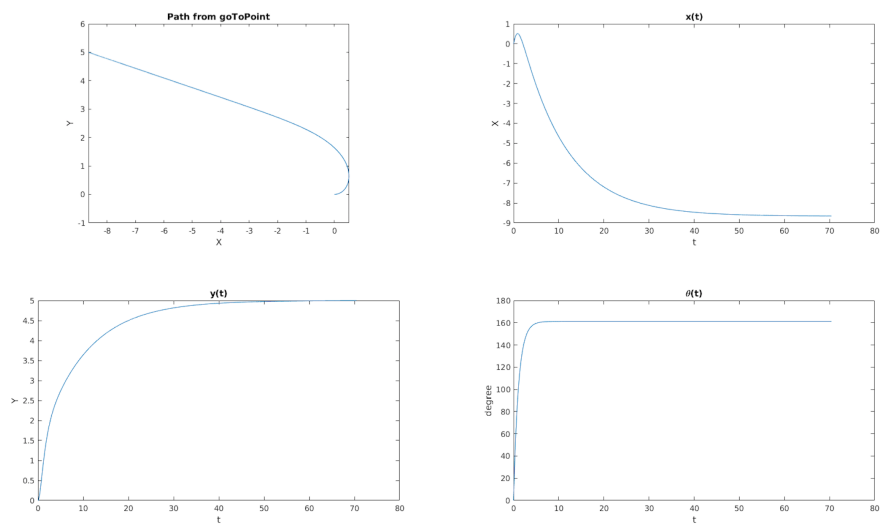ywang51@mason.gmu.edu

February 23, 2017

1. Feedback Control

   The goToPose task requires more stability check of the system, which is covered in the slides. Note the discontinuity of the $\theta(t)$ plot of goToPose is caused by limited degree span $[-180°, 180°]$. In addition, we notice that the followLine system may also end up with unstable situation when K_d is too large.

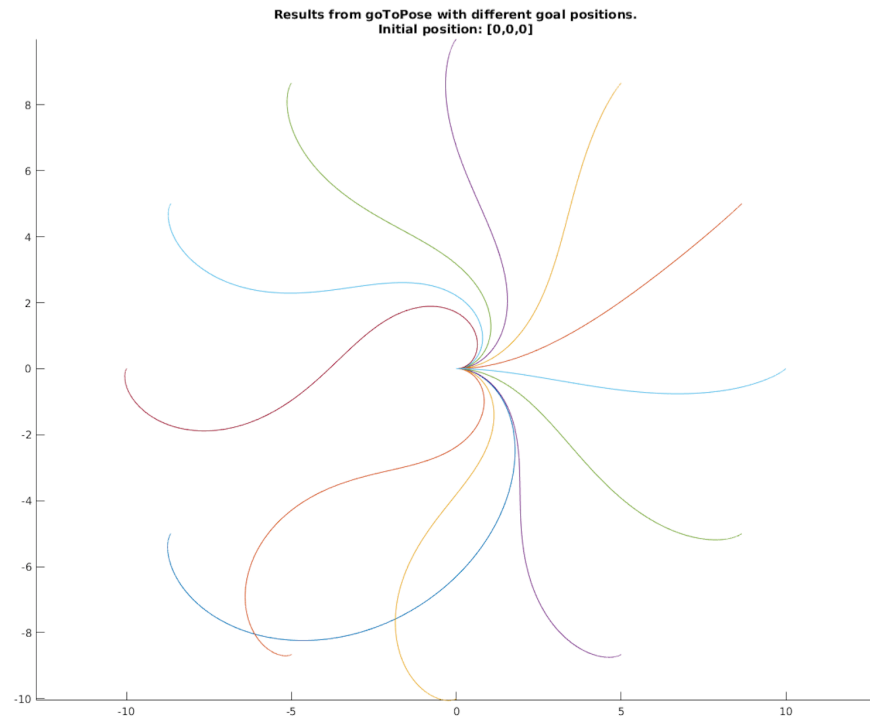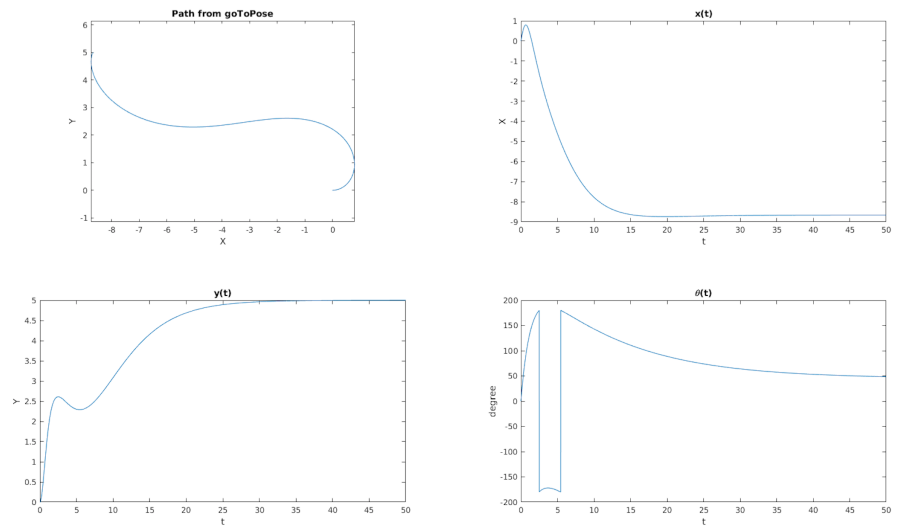   a) goToPoint: path plot

Results from goToPoint with different goal locations.
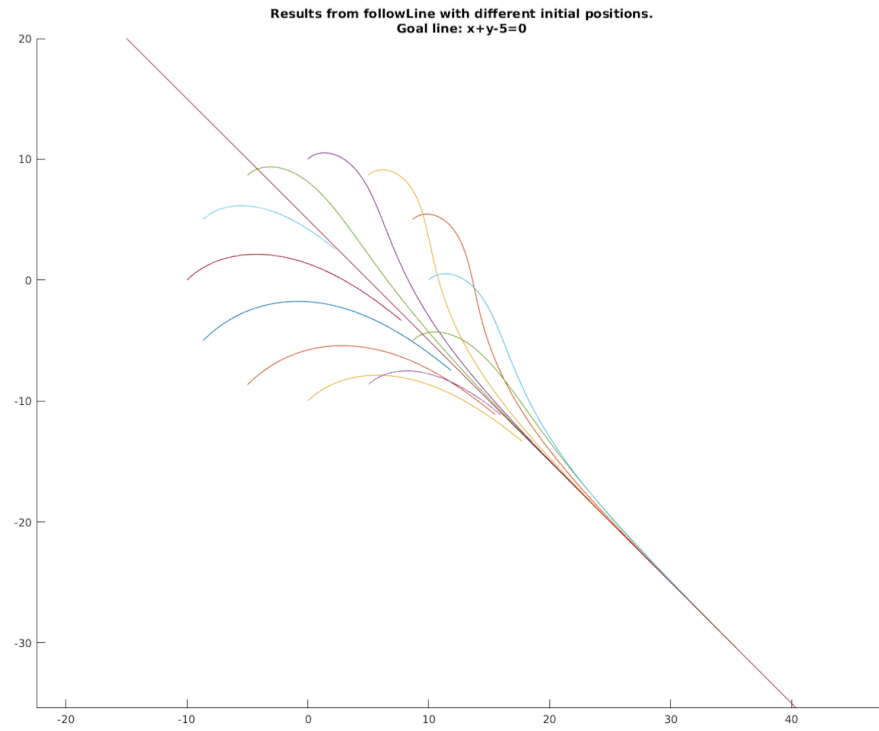Initial position: [0,0,0]

b) goToPoint: $x(t), y(t), \theta(t)$

Path from goToPoint

x(t)

y(t)

θ(t)

c) goToPose: path plot

Results from goToPose with different goal positions.
Initial position: [0,0,0]

d) goToPose: $x(t), y(t), \theta(t)$

Path from goToPose

x(t)

y(t)

θ(t)

e) followLine: path plot

Results from followLine with different initial positions.
Goal line: x+y-5=0

f) followLine: $x(t), y(t), \theta(t)$
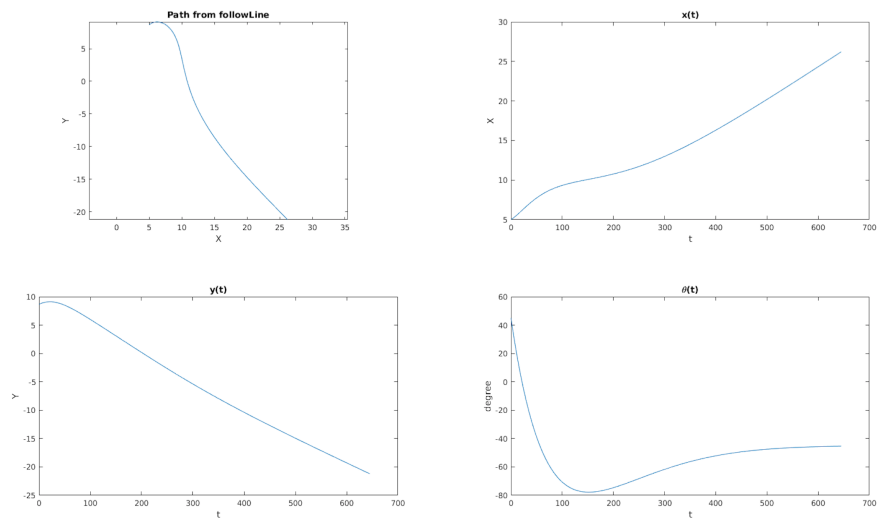
2. Potential Field Control

path plot from potential filed control
initial loc: [0;0], goal loc: [100;60]