

# 24677-A Project - P3

Saeed Bai

TOTAL POINTS

**41 / 50**

QUESTION 1

Exercise 1 30 pts

1.1 Continuous Time Finite Horizon 9 / 10

- 0 pts Correct
- ✓ - 1 pts Output plot is incorrect
- 5 pts Incomplete work

1.2 Discrete Time Finite Horizon 9 / 10

- 0 pts Correct
- ✓ - 1 pts Incorrect output graph
- 1 pts Incorrect comparison of CT and DT control sequence
- 3 pts Incorrect backward recursion

1.3 Infinite Horizon 9 / 10

- 0 pts Correct
- ✓ - 1 pts Incorrect control sequence graph
- 7 pts No LQR was applied

QUESTION 2

Exercise 2 20 pts

2.1 LQR Tuning Approach 7 / 10

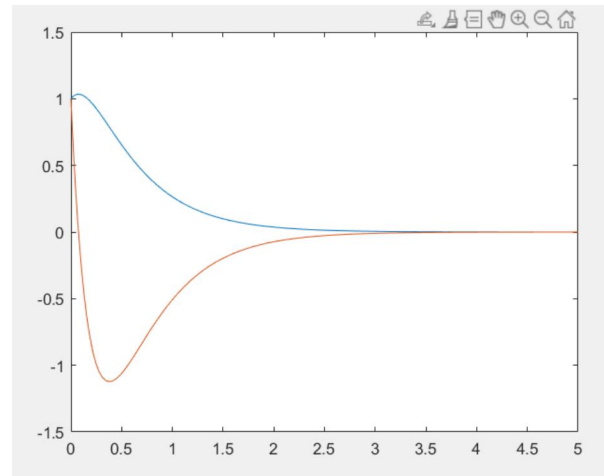
- 0 pts Correct
- ✓ - 3 pts Incorrect tuning approach
- 5 pts No result graph provided
- Where are your reasonings?

2.2 MPC Tuning Approach 7 / 10

- 0 pts Correct
- ✓ - 3 pts Incorrect tuning approach
- 5 pts No result graphs shown
- Where are your reasoning?

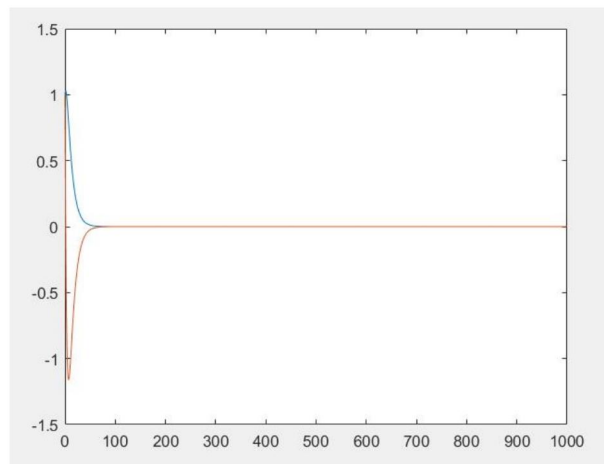
Ex 1.1

Result plot showing on  
the right



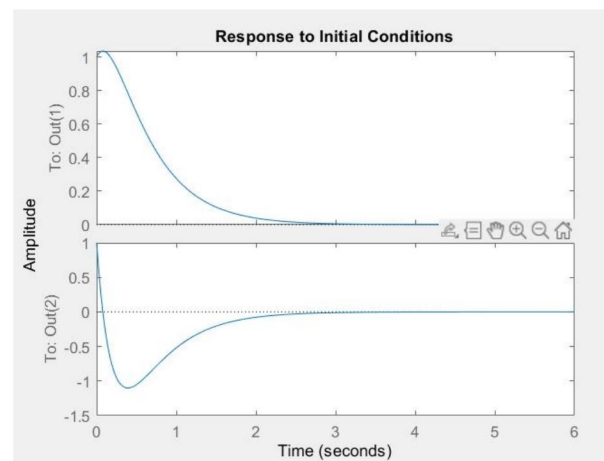
Ex 1.2

Result plot showing on  
the right



Ex 1.3

Result plot showing on  
the right



## 1.1 Continuous Time Finite Horizon 9 / 10

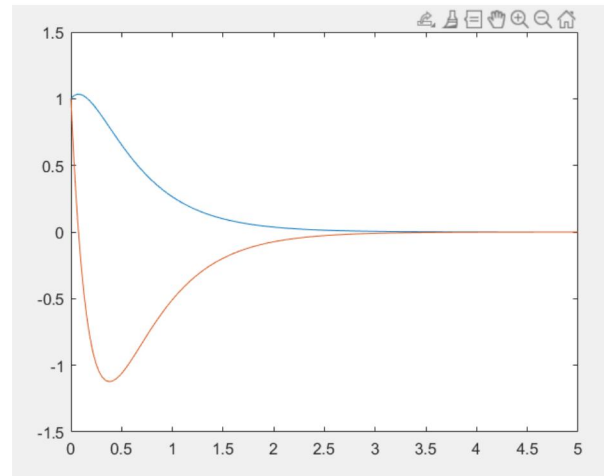
- 0 pts Correct

✓ - 1 pts Output plot is incorrect

- 5 pts Incomplete work

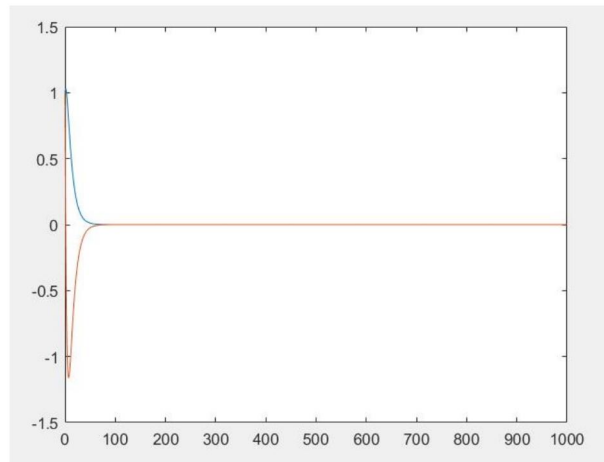
Ex 1.1

Result plot showing on  
the right



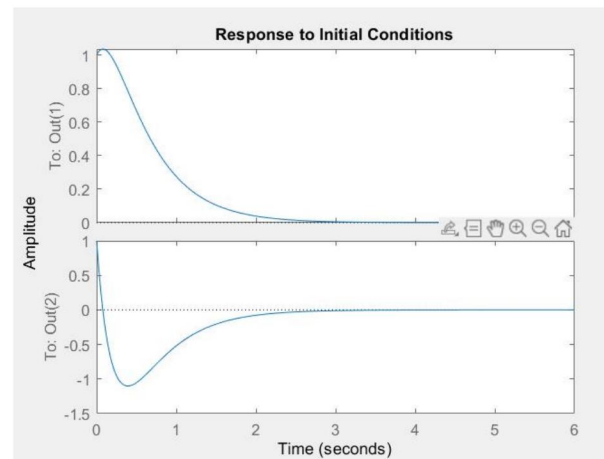
Ex 1.2

Result plot showing on  
the right



Ex 1.3

Result plot showing on  
the right



## 1.2 Discrete Time Finite Horizon 9 / 10

- 0 pts Correct

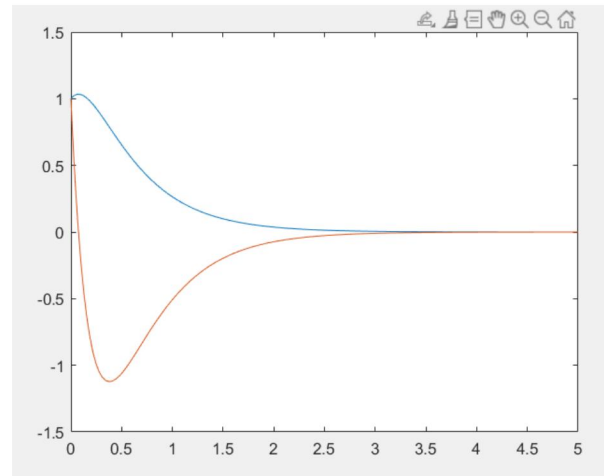
✓ - 1 pts Incorrect output graph

- 1 pts Incorrect comparison of CT and DT control sequence

- 3 pts Incorrect backward recursion

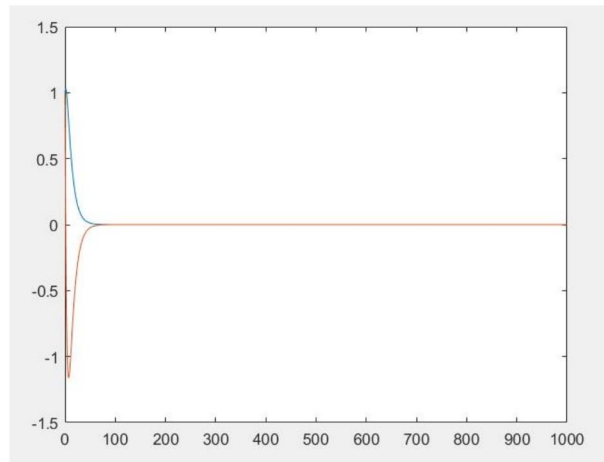
Ex 1.1

Result plot showing on  
the right



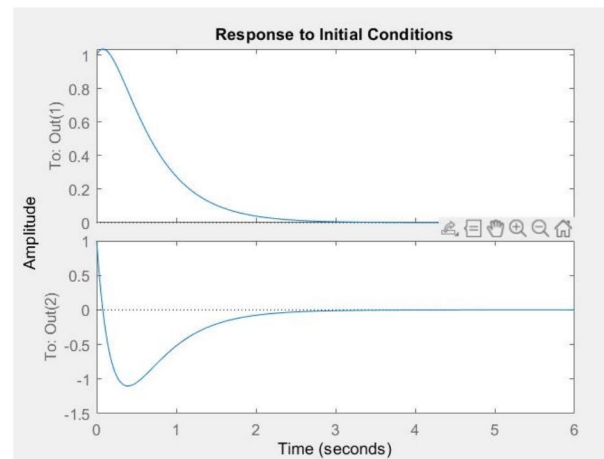
Ex 1.2

Result plot showing on  
the right



Ex 1.3

Result plot showing on  
the right

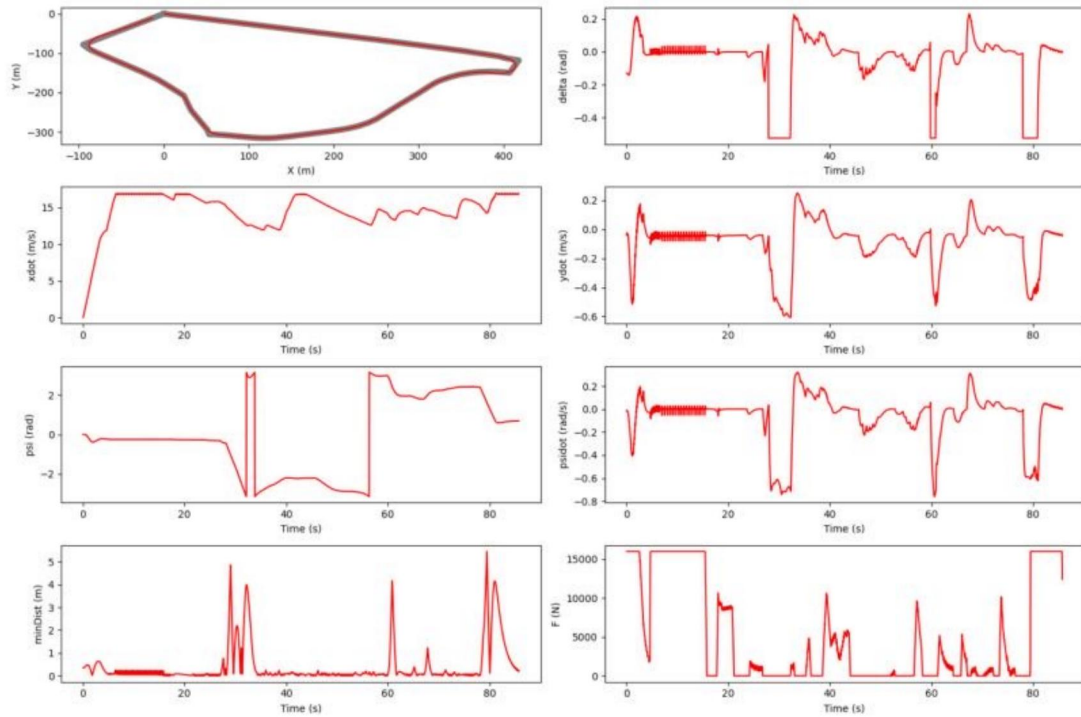


### 1.3 Infinite Horizon 9 / 10

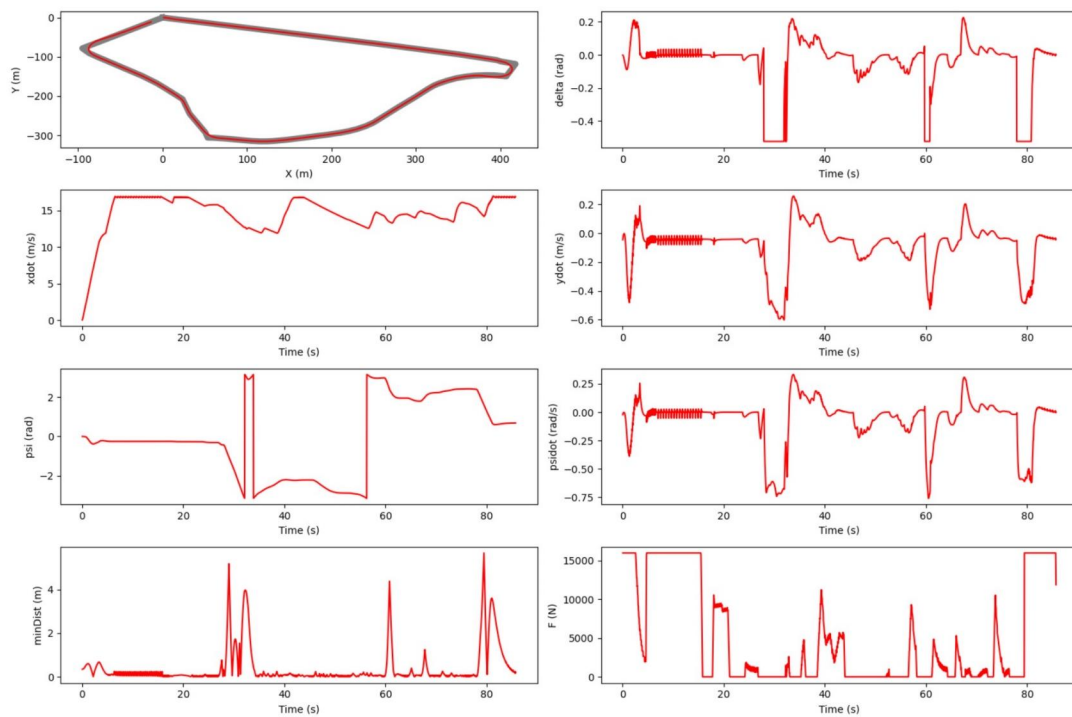
- 0 pts Correct
- ✓ - 1 pts Incorrect control sequence graph
- 7 pts No LQR was applied

Ex 2 . code attached . plots below

LQR



MPC





## 2.1 LQR Tuning Approach 7 / 10

- 0 pts Correct

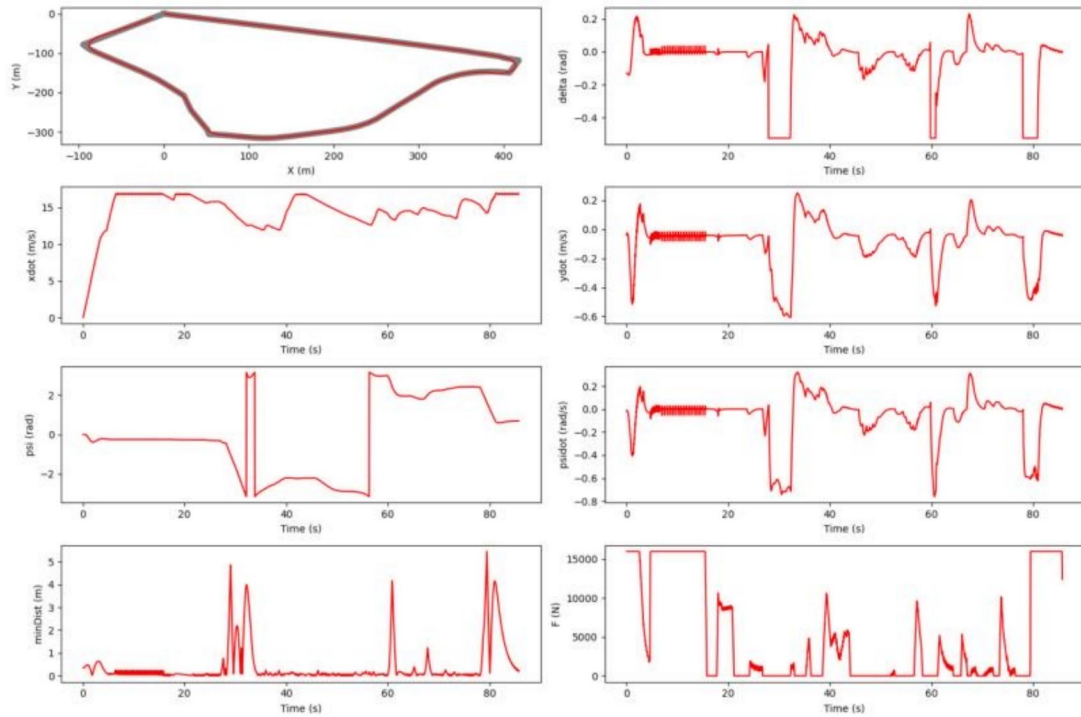
✓ - 3 pts Incorrect tuning approach

- 5 pts No result graph provided

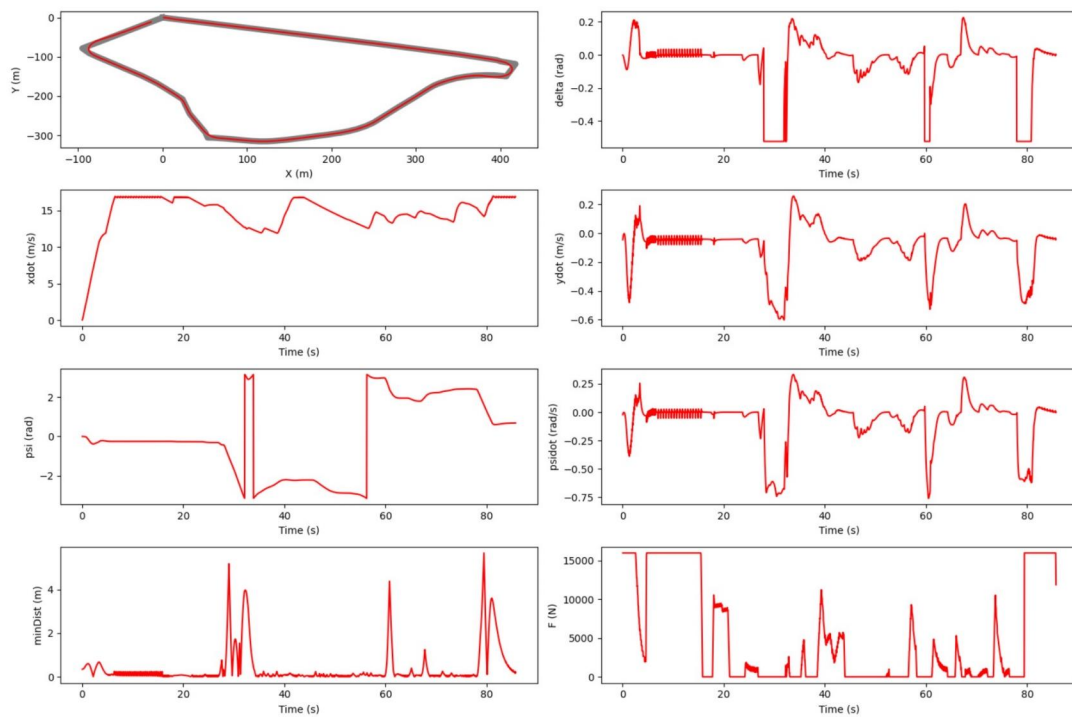
💬 Where are your reasonings?

Ex 2 . code attached . plots below

LQR



MPC



## 2.2 MPC Tuning Approach 7 / 10

- 0 pts Correct

✓ - 3 pts Incorrect tuning approach

- 5 pts No result graphs shown

💬 Where are your reasoning?