

# Homework of Motion Planning for Mobile Robots

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## Abstract

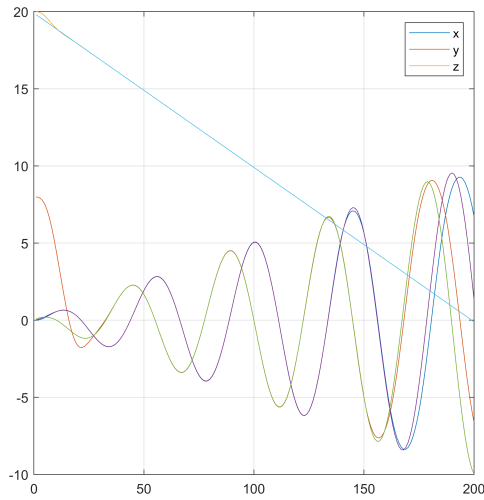
Design a quadratic programming based MPC to track conical spiral for a 3-axis triple integrator. Implement PSO algorithm.

*Keywords:* MPC, PSO

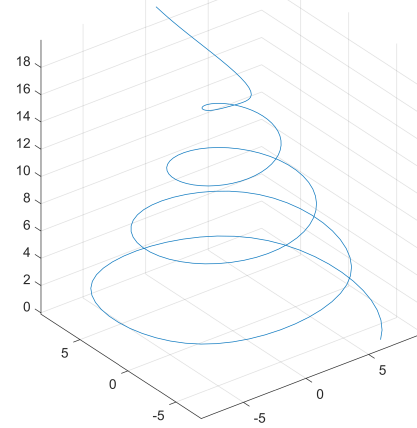
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## 1. MPC

Design a quadratic programming based MPC to track conical spiral for a 3-axis triple integrator(basically a quadrotor model).



(a) positions of 3-axis



(b) 3D perspective

Figure 1: hw 8.1

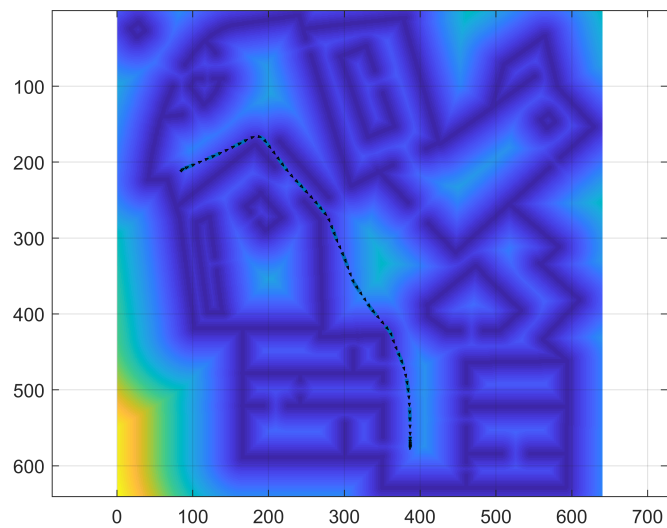
## 2. PSO

The task is to go to the map centre from an arbitrary initial state.

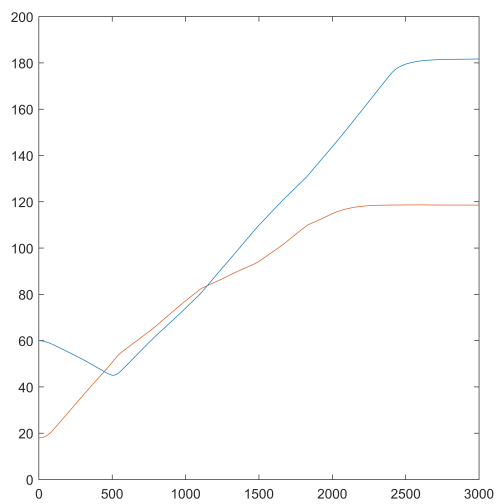
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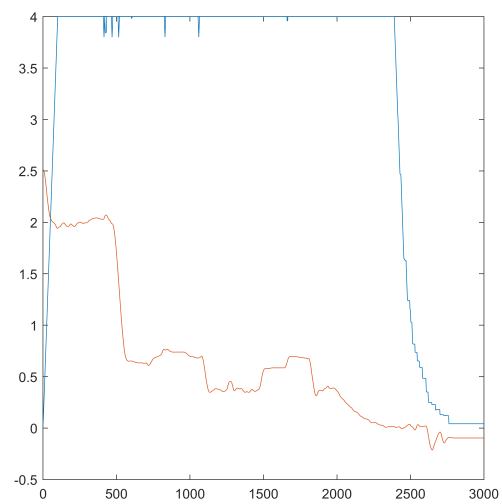
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(a) map



(b) pos



(c) v

Figure 2: hw 8.2