

Modern Robotics practical REPORT

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2017

The hand-in of Modern Robotics practical comprises a number of Matlab (or python) scripts and a short (≈ 2 pages!) report explaining what you did and why. This document sets out some expectations of the report and once again summarises what files you should hand in.

1 Introduction

What do you think is the purpose of the practical, what did you focus on, and what is presented in this short report? (Don't forget to put your name and student number on the report, too.)

2 Forward kinematics

How did you solve the forward kinematics problem? How did you calculate the H-matrices, what are the unit twists and reference configurations you chose?

3 Differential forward kinematics

How did you calculate the end-effector velocity? Did you derive any other kind of Jacobian map for the final position control? What does your matrix look like?

4 Position control

What was your objective? How did you make the robot follow the trajectory? Did you make any modifications to the proposed control method? Can you explain what is going on?

5 Implementation

Any peculiarities when implementing Brockett, Jacobian and position control in Matlab? Any pieces of code you want to highlight? Can you comment on the efficiency of your code?

6 Results

Here you should include:

- a plot showing the robot's movement, compared to its desired movement;
- a photo of yourself (or your group) with the robot.

It is up to you to decide what plot would be most suitable to display the robot's performance, what is interesting and what not.¹ The second is your way of showing how happy you were to apply the theory on a real robot.

7 Deliverables

Put all three required functions (and any other functions on which these depend) into a folder named after your university and student number. Zip this folder and hand it in.

The zipfile should contain the following:

```
UTs1234567\  
UTs1234567\getHmatrices.m  
UTs1234567\getJacobian.m  
UTs1234567\calculate_qd.m  
UTs1234567\any_other_helper_functions.m
```

8 Group work

If you did the practical in a group, each group member must hand in their own zip and report. (The files may be identical. Please indicate on the report all group members' names and student numbers.)

¹You could even think about strapping a pen to the robot and have it draw its trajectory on a piece of paper...