EE144 Lab: Programming in Python

1 Lab Assignment

In this lab, your task is to program in Python to finish Exercise 3.42-3.46, 3.48 in book MODERN ROBOTICS MECHANICS, PLANNING, AND CONTROL. In your lab report, please indicate which python version you used. The software mentioned in Exercise 3.42 is described in section 3.6 in the book.

You should submit a folder, containing 1) lab report as a group, describing your approach and explaining your code, 2) your commented code. One .py file is required for each question, with name "exercise343.py", "exercise344.py" and so on, up to "exercise348.py". You do not need to submit code for Exercise 3.42. The report should be submitted via iLearn by one of the team members, and is due at the beginning of next lab session(April 24).

Based on what you have learned so far, you should be able to solve the problems. Reading lecture slides and textbook will help you understand what the problem is asking for. Try to discuss with your partners if you have any question. All necessary hints are given in the following section. Self-learning and debugging skills are are essential for this lab assignment.

2 Hints for Assignment

Code for Exercise 3.42 is given as a library on iLearn. The description of the code is given in the pdf. It is modified to work for both python2 and python3. If you want to use spyder for python 2 by (please do this even if you have done so in the first lab)

```
$ pip install spyder
```

If you want to use spyder for python 3, you have already installed it in the first lab.

Please let the TA know if you find any problem. Some packages are useful for this assignment, to install

```
For python2
$ sudo apt-get install python-numpy python-scipy
$ sudo apt-get install python-matplotlib
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For python3
$ sudo apt-get install python3-numpy python3-scipy
$ sudo apt-get install python3-matplotlib
```

2.1 Check given library

Please test the given library with the given examples in the code comment.

2.2 Numpy and Scipy

https://docs.scipy.org/doc/numpy-dev/user/quickstart.html
http://cs231n.github.io/python-numpy-tutorial/

2.3 Matplotlib

https://www.labri.fr/perso/nrougier/teaching/matplotlib/