Homework 0 – ROS Installation

CSCI 3302 :: Introduction to Robotics

Due 1:59pm, 10/2/2019

Background Knowledge

If you do not have much experience working with a Linux shell, please read this introduction to bash by R. Toal and What Is The Bashrc File Used For? by G. Newell. At the bare minimum, you should be familiar with the commands `cd`, `ls`, `rm`, `mkdir`, `echo` before starting the assignment.

1. Install Ubuntu 18.04.3 LTS from https://ubuntu.com/download/desktop

   ### (Option 1) Native Installation

   This will give you the best performance with the least amount of VM-related hassles, but installation experience will vary depending on the hardware you're using.

   ### (Option 2) Virtual Machine Installation

   This is generally the easier method since you won't have to mess with your computer's bootloader or hard drive partitions, but it will operate at greatly reduced performance.

   i. Virtualbox is a free hypervisor that you can get here: https://www.virtualbox.org/wiki/Downloads
   ii. Click "New" to create a new Virtual Machine
   iii. Choose "Linux" for type and "Ubuntu 64-bit" for version
   iv. Start the Virtual Machine
   v. When prompted, select the ubuntu-18.04.3-desktop-amd64.iso disk image to load into the virtual optical drive

2. Install ROS Melodic from http://wiki.ros.org/melodic/Installation/Ubuntu
    a. You should be installing the desktop-full version.

3. Complete ROS Beginner Tutorials 1-18 at http://wiki.ros.org/ROS/Tutorials
    a. You may skip the C++ tutorials (#11 and #14), as we will be exclusively using Python in this course

4. Create a ROS Node with the following properties:
    a. Node name must be initialized to your last name
    b. The node should instantiate a publisher to topic "/homework0" with type std_msgs/String
    c. The node should instantiate a subscriber to topic "/homework0" that invokes a callback function named "hw_zero" that you create.
        i. The "hw_zero" function should output the contents of the received message into the ROS_INFO logging level (Logging Overview: http://wiki.ros.org/rospy/Overview/Logging)

To Turn In:

1. A screenshot from rqt_graph while your node is running.
2. A screenshot of your terminal's output from typing the command "rostopic info /homework0"
3. The Python code from your ROS node, named <last name>.py