Introduction to Cognitive Robotics

Module 1: Overview of Cognitive Robotics

Lecture 4: Installation of software development environment

David Vernon
Carnegie Mellon University Africa

www.vernon.eu

Software Development Environment

Ubuntu 18.04

ROS Melodic   (includes OpenCV for optional Module 5 Robot Vision)

C++   (used in the Module 2 ROS and Module 4 Robot Manipulators and
                     optional Module 3 Mobile Robots & optional Module 5 Robot Vision)

CRAM   (used in Modules 8 – 11 on the Cognitive Robot Abstract Machine)

Common Lisp   (used in Modules 8 – 11 on the Cognitive Robot Abstract Machine)

Repository of example software in C++ and Lisp

Software Development Environment

There are two options

    Option A: Install a VirtualBox Ubuntu 18.04 virtual machine with everything pre-installed

    Option B: Install all the required tools and utilities directly on a computer running Ubuntu 18.04

The installation procedure for Option A is set out on this Wiki page:

    http://www.vernon.eu/wiki/Cognitive_Robotics_-_Software_Installation_Guide

There is an installation procedure for Option B but with Ubuntu 16.04 on this Wiki page:

    http://www.vernon.eu/wiki/Cognitive_Robotics_-_Software_Installation_Guide_16.04

Exercise

Open a terminal (ctrl + alt + t) and enter

   $ roscore

Open a second terminal (ctrl + shift + t) and enter

   $ rosrun turtlesim turtlesim_node

Open a third terminal (ctrl + shift + t) and enter

   $ rosrun turtlesim turtle_teleop_key

The separate terminals are intended to allow all three commands to execute simultaneously.

Exercise

If everything works correctly, you should see a window similar to the one below
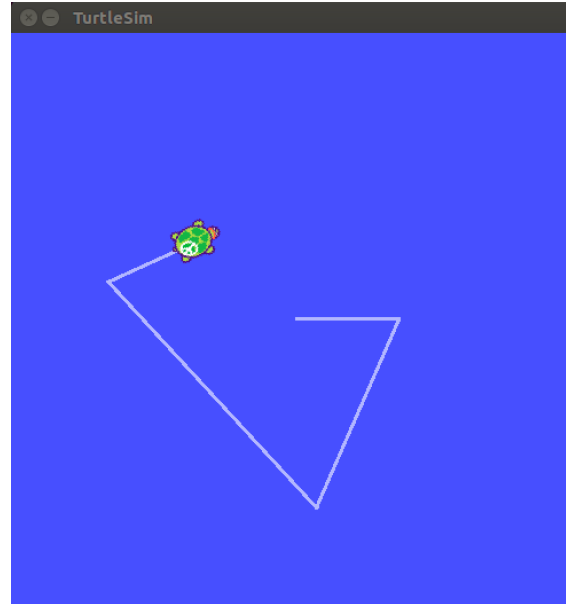
The appearance of your turtle may differ:
The simulator selects from a collection of mascot turtles for each of the historical distributions of ROS
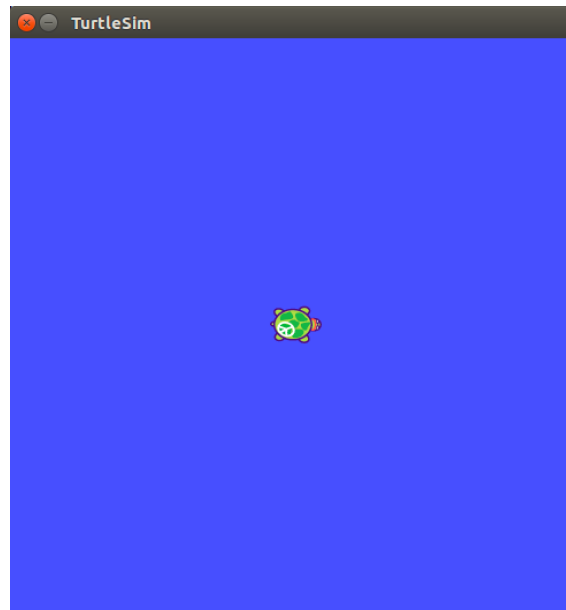
Exercise

Make sure your third terminal (the one executing the turtle_teleop_key command) is in focus (i.e. is selected)

Press the Up, Down, Left, or Right arrow key to move the turtle and leave a trail behind it

Exercise

In Module 2, we will learn how to write C++ software in ROS to control the turtle and the trace it leaves as it moves

You will use this software in the first assignment