

Übungen zur Vorlesung Praktikum KI-Basierte Robotersteuerung

Prolog

For the rest of the course we will work with ROS. ROS is a meta operating system providing a middle ware and a set of libraries for the development of mobile robots. The easiest way to install it on a laptop is to follow the install instructions for your platform on the ROS homepage at <http://www.ros.org/wiki/ROS/Installation>. Please install the variant *ros-electric-desktop-full*. After installing ROS, please also install a few additional packages:

```
sudo apt-get install ros-electric-ros-tutorials ros-electric-cram-pl  
sudo apt-get install ros-electric-roslisp-common ros-electric-roslisp-support
```

After installing the Ubuntu packages, you need to set up a so-called “overlay”. First, you need *python-setuptools* to install *rosinstall*:

```
sudo apt-get install python-setuptools  
sudo easy_install rosinstall
```

Now create the overlay:

```
mkdir -p ~/ros/workspace  
rosinstall ~/ros /opt/ros/electric ~/ros/workspace
```

The file `~/ros/setup.bash` needs to be loaded at every login. Execute (once):

```
echo "source ~/ros/setup.bash" >> ~/.bashrc
```

All ROS packages created in the tutorials should be created in the directory `~/ros/workspace` no matter what the respective tutorial says to keep the ROS set up clean and prevent problems.

1. First steps in ROS

Go through the following tutorials:

- (a) <http://www.ros.org/wiki/ROS/Tutorials/NavigatingTheFilesystem>
- (b) <http://www.ros.org/wiki/ROS/Tutorials/CreatingPackage>
- (c) <http://www.ros.org/wiki/ROS/Tutorials/BuildingPackages>
- (d) <http://www.ros.org/wiki/ROS/Tutorials/UnderstandingNodes>
- (e) <http://www.ros.org/wiki/ROS/Tutorials/UnderstandingServicesParams>
- (f) http://www.ros.org/wiki/ros_lisp/Tutorials/BasicUsage

2. Introduction to CRAM

Go through the following tutorials:

- (a) http://www.ros.org/wiki/cram_pl/Tutorials/SetupAndFirstSteps
- (b) http://www.ros.org/wiki/cram_pl/Tutorials/CreatingCramPackage
- (c) http://www.ros.org/wiki/cram_pl/Tutorials/ControllingTurtlesimFromLisp
- (d) http://www.ros.org/wiki/cram_pl/Tutorials/ImplementingSimplePlans