

# System Configure for V-REP

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## System Initialization

- OS: Ubuntu 16.04
- Install ROS and configuration
- Install Python-pip
  - sudo apt update
  - sudo apt upgrade
  - sudo apt install python-pip
  - Sudo Pip install --upgrade pip
- Install Git and configure Github
  - [https://blog.csdn.net/tina\\_ttl/article/details/51326684](https://blog.csdn.net/tina_ttl/article/details/51326684)
- Install Virtualenv
  - Sudo pip install virtualenv
  - Sudo pip install virtualenvwrapper
  - <https://virtualenvwrapper.readthedocs.io/en/latest/>
  - Add these to "~/.bashrc"  
export WORKON\_HOME=~/.Env  
source /usr/local/bin/virtualenvwrapper.sh
- System monitor: <https://www.jianshu.com/p/995bba5e0320>

## Git Clone Ugo's branch

- Rmvirtualenv BARC\_Simulator
- (In virtualenv)
  - Pip Install scipy
  - pip install pyyaml
  - Pip install rospkg
  - Pip install matplotlib
  - Pip install osqp
  - pip install cvxopt
  - Pip install empy
- Git Clone to any preferred folder: git clone -b devel-ugo <https://github.com/MPC-Berkeley/barc.git>
- ControllerMain.py edit "/barc\_data" + "/ClosedLoopDataPID.obj"
- Create Data Folder barc\_data
- source devel/setup.bash
- Roscore
- Roslaunch

## V-Rep

- Download V-Rep from website: <http://www.coppeliarobotics.com/downloads.html>
- Run roscore
- Extract and run: bash vrep.sh
- Make sure the ROSInterface is successfully plugged in
- Run three ROS demo as stated in <http://www.coppeliarobotics.com/helpFiles/index.html>
  - Some description are not the same as Tutorial (ROSInterface is not in compiledRosPlugins anymore)
  - No need to copy it (If there is no error)
- Customize Messages:
  - Sudo apt install ros-kinetic-brics-actuator
  - Sudo apt install ros-kinetic-geometry2

- Cd catkin\_ws/src/external git clone [https://github.com/CoppeliaRobotics/v\\_repStubsGen.git](https://github.com/CoppeliaRobotics/v_repStubsGen.git) --recursive
- Sudo apt install xsltproc
- Clone [https://github.com/CoppeliaRobotics/v\\_repExtRosInterface](https://github.com/CoppeliaRobotics/v_repExtRosInterface) as README
- Add pkg\_name/msg\_name (for example, barc/ECU) in v\_rep\_rosinterface/meta/messages.txt
- Source ~/path-to/catkin\_ws/devel/setup.bash
- Under workspace, catkin\_make!
  - Make sure the ubuntu MEM is above 2.6GB
- Copy the new compiled ~/path-to/devel/lib/libv\_repextrosinterface.so to VREP folder
- Start using your new msg!