Task 0: Software Installation

1) CoppeliaSim Edu 4.5.1

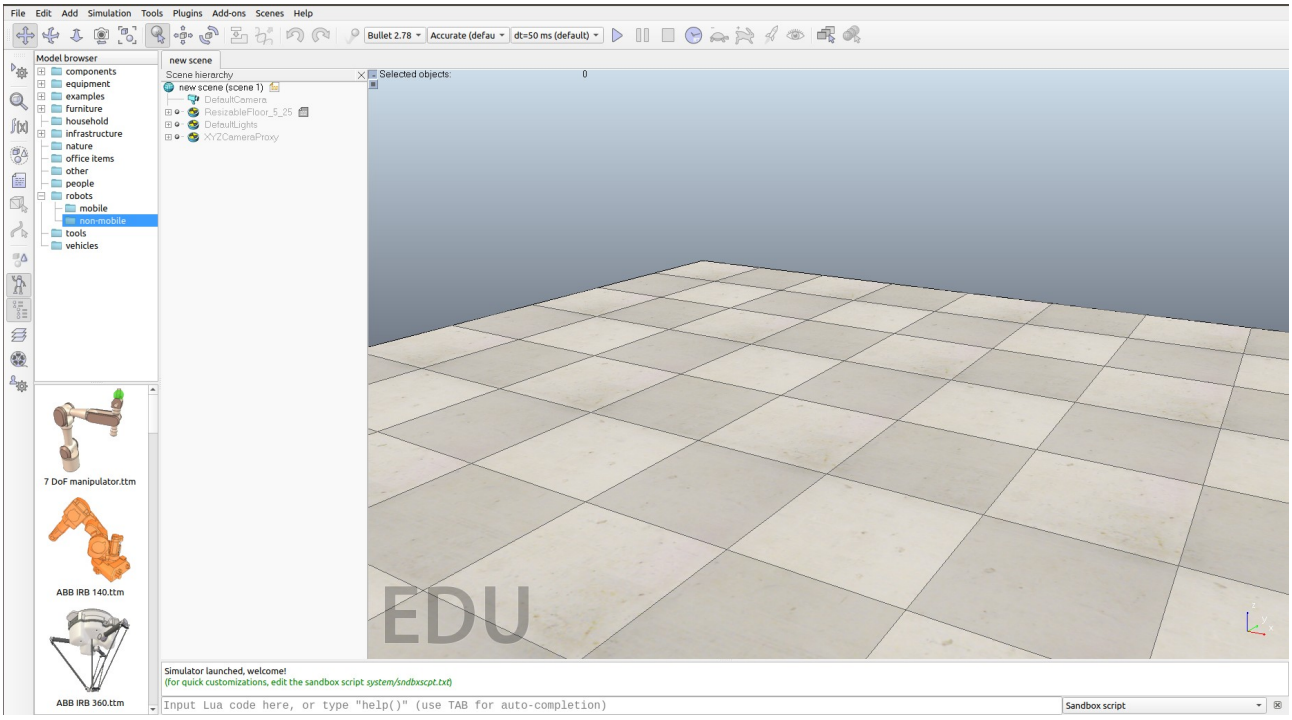
- Coppeliasim(also known as V-REP) is a Robotics Simulation Platform.
- In CoppeliaSim, each object/model can be individually controlled via an embedded script, a plugin, a ROS or BlueZero node, a remote API client, or a custom solution.
- Controllers (PID, LQR in our case) can be written in C/C++, Python, Java, Lua, Matlab or Octave.
- For website overview – Coppeliasim

INSTALLATION STEPS

i. Download Link - Click here

ii. Navigate to the downloaded .exefile and double-click it to install the software.

iii. Once the installation is complete, a shortcut icon to launch the software would have been created on your Desktop. Double-click to launch it. CoppeliaSim will open as shown in Figure-7 with the default scene loaded.



Task 0: Software Installation

2)Octave 5.2.0

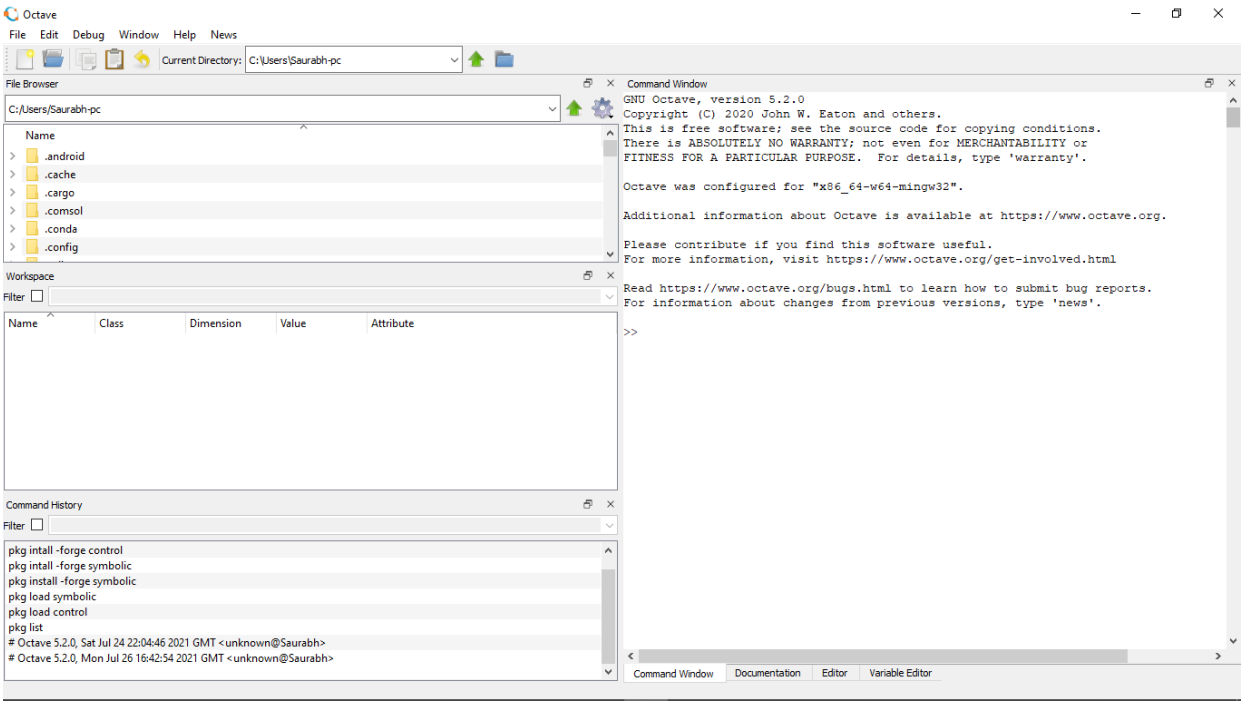
- GNU Octave is software featuring a high-level programming language, primarily intended for numerical computations.
- Octave helps in solving linear and nonlinear problems numerically, and for performing other numerical experiments using a language that is mostly compatible with MATLAB.
- MATLAB can also be used in place of Octave.
- Website overview - octave

INSTALLATION STEPS - (a) Software Installation

i. Download Link – Download

ii. Navigate to the downloaded .exefile and double-click it to install the software.

iii. Once the installation is complete, a shortcut icon to launch the software would have been created on your Desktop. Double-click to launch it. Octave will open as shown in Figure-9 with the default scene loaded.

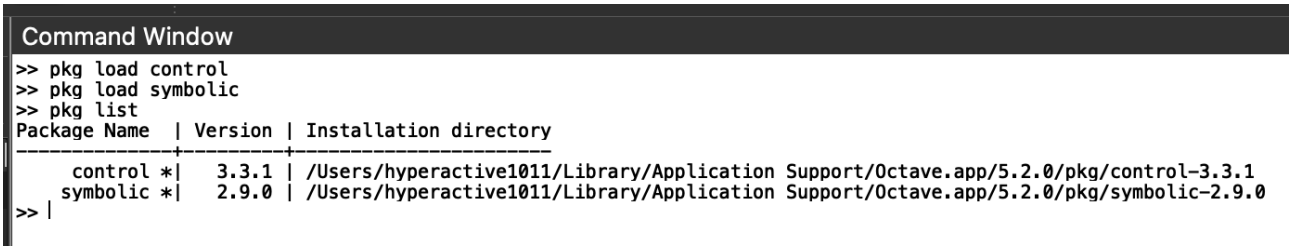


INSTALLATION STEPS - (b) Package Installation

- Once the Octave5.2.0 is launched go to Command Window and now we will install two essential packages called “**control**” and “**symbolic**”

Task 0: Software Installation

- Run command -> pkg list
  In the Command Window of octave gui. This will display all the installed packages in octave. If any of the two packages (above mentioned) is/are already installed then you can skip following install commands accordingly.
- To install control package into octave run following command in octave command window -> pkg install -forge control
- To install symbolic package into octave run following command in octave command window -> pkg install -forge symbolic
- Now run following command to load the above mentioned two packages:
  pkg load control
  pkg load symbolic
- Then run
  pkg list
  and you will see a list of libraries installed in your octave environment. In that list you must see “control” and “symbolic” libraries with “*” in front of them.



- **Note:** Make sure that you get an asterisk(*) in front of both control and symbolic in Command Window

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FOR MAC USERS

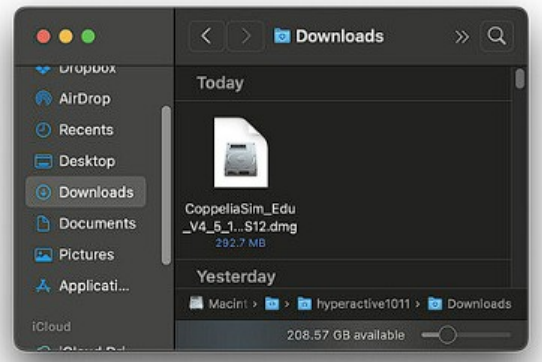
1) CoppeliaSim Edu 4.5.1

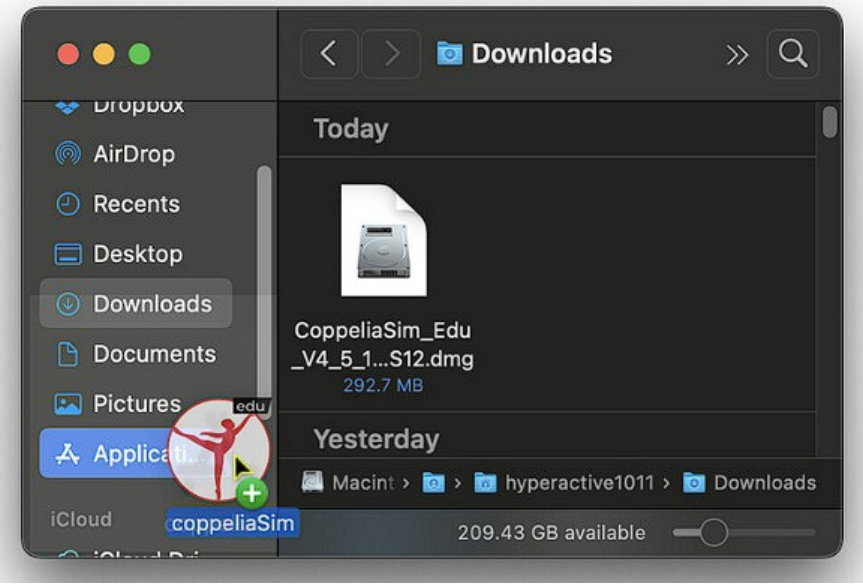
Download the installation file from here:

macOS 12(intel)

macOS 13(Apple Silicon)

•Double click the downloaded file, it will open another window containing the CoppeliaSim file as shown below. Now move this file to Applications as shown in figure below





•:Now open terminal and run following commands:

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cd /Applications/coppeliaSim.app
sudo xattr -r -d com.apple.quarantine *

2) Octave 5.2.0

- Download Link – Octave
- Double click on the package installer downloaded. Follow the steps.
- After installation run the Octave5.2.0 from the launchpad. MacOS might block the software from launching, therefore after the first attempt of launching the Octave app go to System Preferences>>Security and Privacy>>General>>Give permission to run by clicking “open anyway”.

- Control and symbolic package Installation steps will be same for windows and Mac Users.