Installing Robot Control Software

Overview

1. Install Anaconda
2. Create a Conda environment and activate it
3. Install COMPAS, COMPAS_FAB & COMPAS_RRC using Conda
4. Add the Compas libraries to Rhino's Python paths
5. Install VSC + Docker and compose up the image file
6. Open the Robot Playground grasshopper file
7. Generate Robot instructions and Simulate
8. (Run on robot)

Step 1: Install Anaconda

This installs Python and Conda, an environment and package manager

https://www.anaconda.com/products/distribution#Downloads

Step 2 & 3 : Conda Environment & COMPAS suite

- in terminal [mac] / anaconda prompt [win]:

Creating the environment and installing COMPAS, COMPAS_FAB & COMPAS_RRC

```
(base) conda config --add channels conda-forge
(base) conda create -n rrcgis -c conda-forge python=3.8 compas
(base) conda install -n rrcgis python=3.8 compas_fab
(base) conda install -n rrcgis python=3.8 compas_rrc
```

Activating the environment

```
(base) conda activate rrcgis
```

Verifying installation

```
(rrcgis) python -m compas
```

Step 4: Add COMPAS to Rhino

EPFL ■ CRCL

Add the COMPAS libraries to Rhino's Python paths (this also adds Grasshopper components)

- in terminal:

```
(rrcgis) python -m compas_rhino.install -v 7.0
```

- in Rhino (after restart if opened):

  `_EditPythonScript`

  `import compas_fab` and run to verifying installation

  `_Grasshopper`

  Check the presence of a COMPAS FAB tab

Step 5: Install VSC + Docker and compose up the image file

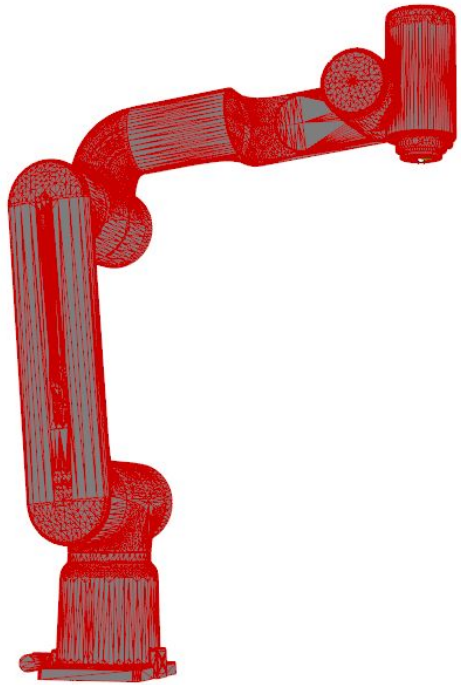
- Download & Install Visual Studio Code: https://code.visualstudio.com/
- Download & Install Docker Desktop: https://www.docker.com/products/docker-desktop

NOTE: After installation on Windows, it is normally required to enable Virtualization on the BIOS of the computer.

- Start Docker Desktop
- In Visual Studio Code, open the provided compas start folder, right click on the docker compose image, and compose up

Step 6 & 7 : Open the grasshopper file, Generate robot instructions and Simulate

- Open the file *ABB_GoFa_robot_playground_RRCGIS_01.gh*
- Connect to ROS (Docker) and Load the robot
- Explore forward kinematics, inverse kinematics, and pick & place



Visualized in Rhino

Resources

COMPAS (Installation instructions and documentation)
COMPAS_FAB (Installation instructions and documentation)
COMPAS_RRC (Installation instructions and documentation)