

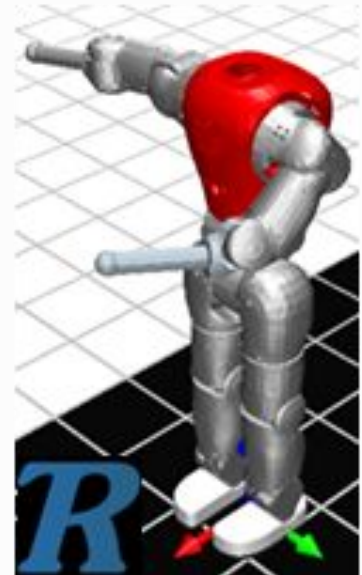
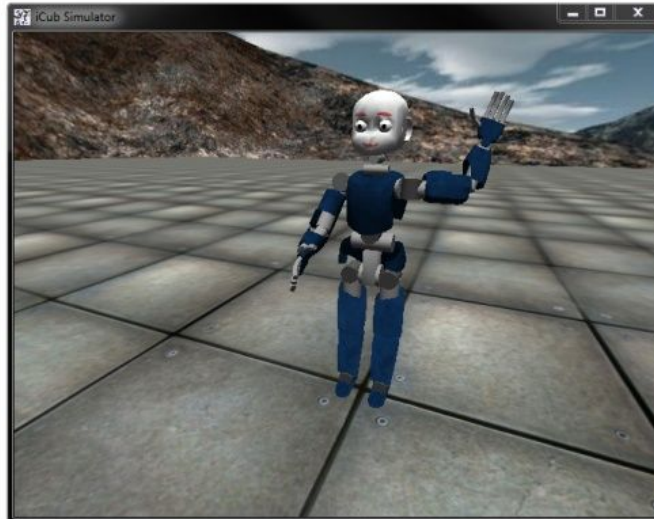
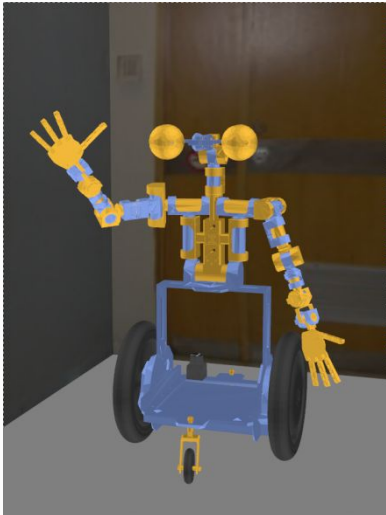


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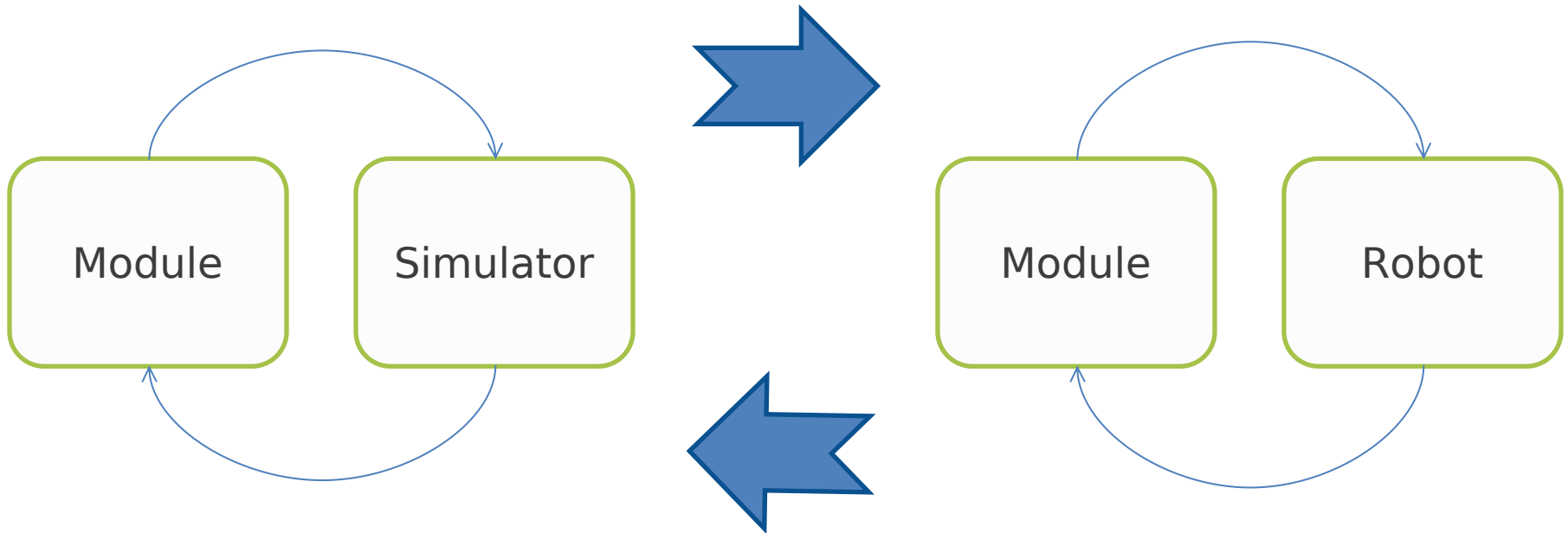
Simulators with YARP

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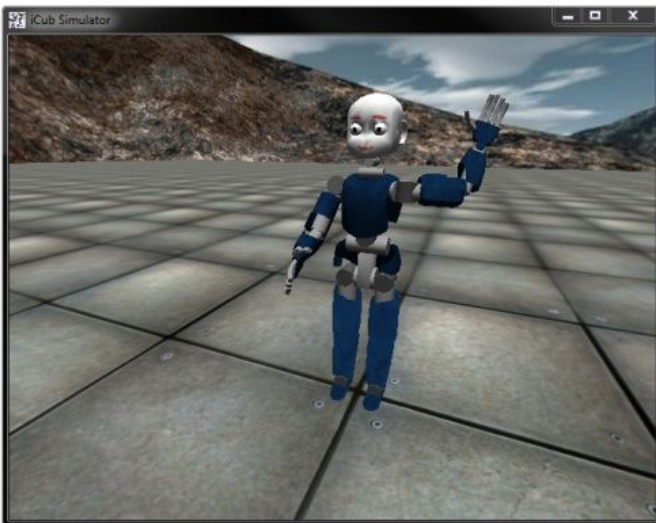
Motivations



Provide the same interfaces of real robots, for software reuse

iCub_SIM

- Custom iCub simulator developed since 2008 using ODE and OpenGL
- Included in icub-main software (you should already have installed it!)
- Full support for vision/manipulation/Windows



iCub_SIM Hands-on

- Docs : http://wiki.icub.org/wiki/Simulator_README
- Launch from terminal with `iCub_SIM` command
- To modify the simulation behaviour, modify the config files in context : `simConfig`

iCub_SIM

- **Launch iCub_SIM (yarpserver before)**
- **yarp name list**
- **lauch yarpview**
- **yarpmotorgui**
- **emotionInterface**
- **enable table**
- **world port**
- **push ball**

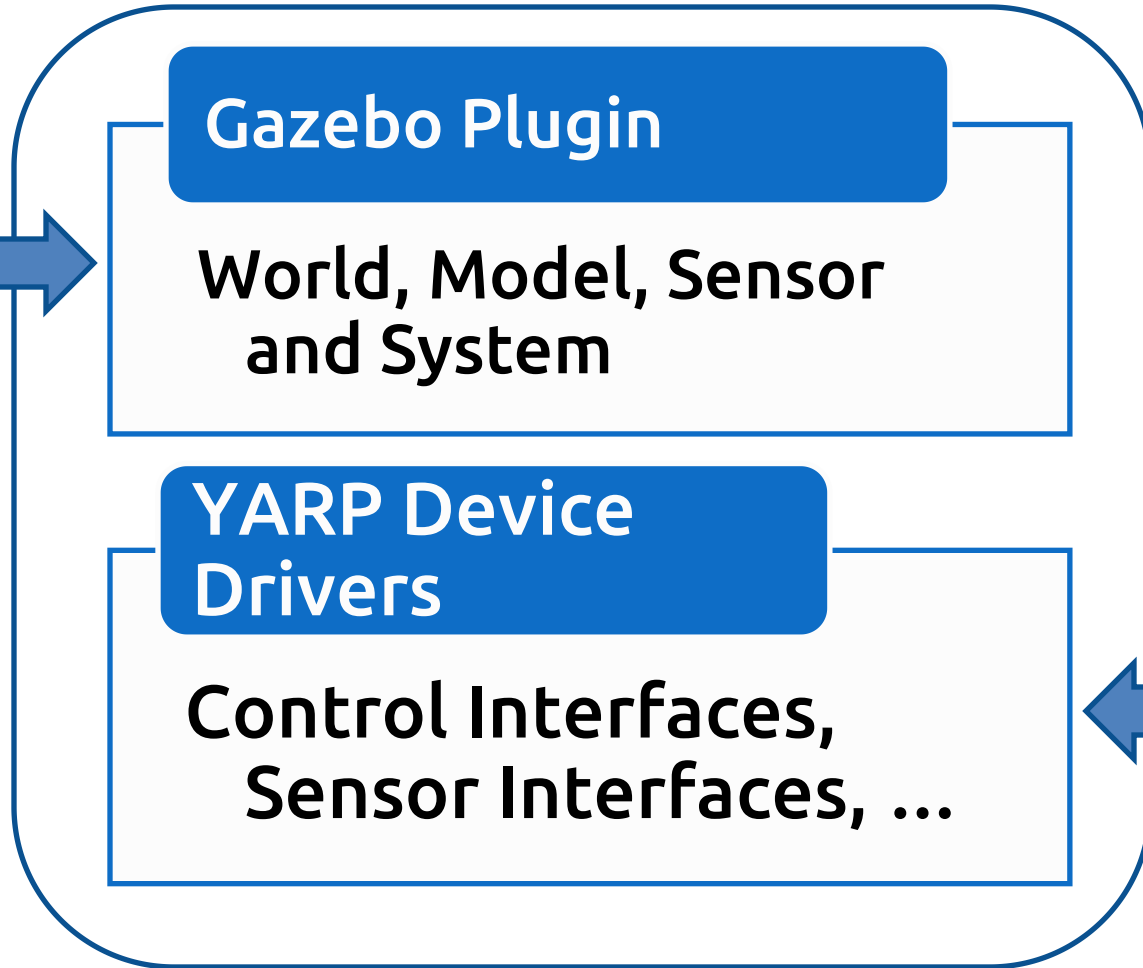
Gazebo



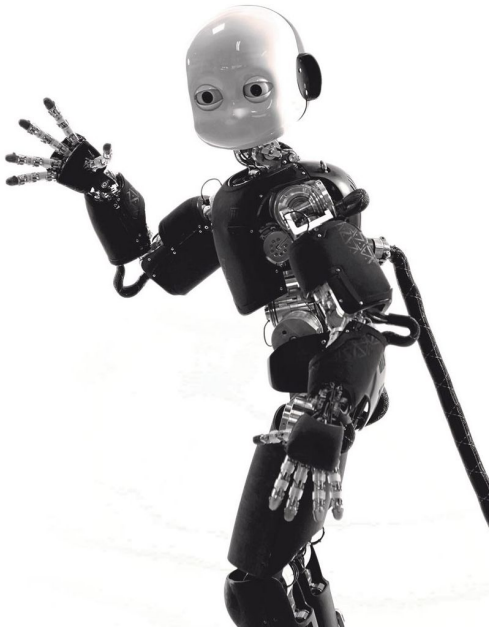
GAZEBO

- General purpose simulator
- Maintained by OSRF (team of ~10 full time developers)
- Developed since 2003, developed boosted in 2012 thanks to a DRC DARPA grant
- Support several physics engines (ODE, Bullet, Simbody, DART) with different performances
- Extendable with C++ plugins
- Active community:
Q/A : <http://answers.gazebosim.org/>
Dev: <https://bitbucket.org/osrf/gazebo>

gazebo-yarp-plugins



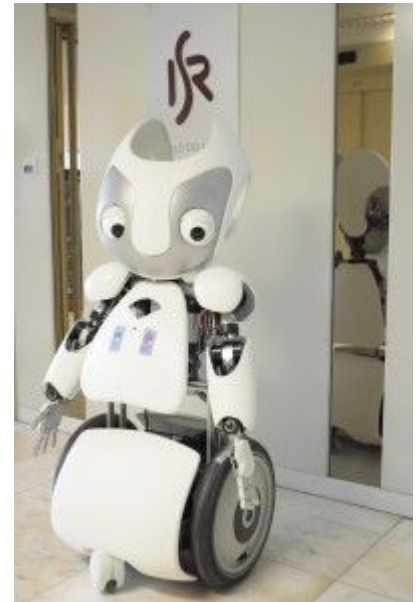
gazebo-yarp-plugins



iCub (Genoa, London, Paris,
Rome, Osaka, Urbana,
Karlsruhe, ...)



Coman (Genoa,
Bielefeld)



Vizzy (Lisbon)

gazebo-yarp-plugins

- Limitations :
 - Windows support still not tested
 - No support for hands
 - No support for moving eyes
- We can tackle some of these issues at the VVV:
 - <https://github.com/robotology/gazebo-yarp-plugins/issues/132>
 - http://wiki.icub.org/wiki/VVV15_tasks#Subtask_3.1_Improve_Gazebo_Simulator

gazebo-yarp-plugins Hands-on

- Docs : <https://github.com/robotology/gazebo-yarp-plugins/blob/master/README.md>
- Launch from terminal with gazebo command
- Spawn the desired model from GUI
- To modify the iCub model, modify the config files in directory : **icub-gazebo/icub**

Hands-on session



gyp hands on

- **Launch iCub**
- **Launch Coman**
- **yarpview**
- **yarpmotorgui**
- **start&stop**
- **spawn multiple objects**
- **SDF editing**

Other YARP enabled simulators

- Robotran:
 - Simulator based on symbolic formalism of robot dynamics, generated for each robot
 - https://gitlab.robotran.be/walkman/coman_robotran
- MORSE:
 - High level simulator
 - Limited YARP support (no controlboards)
 - <http://www.openrobots.org/morse/doc/stable/user/middlewares/yarp.html>