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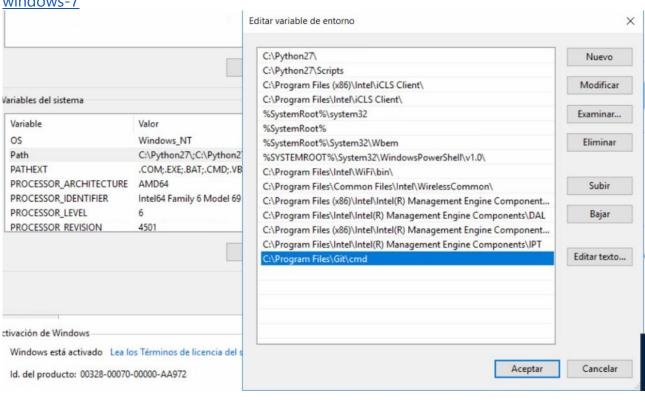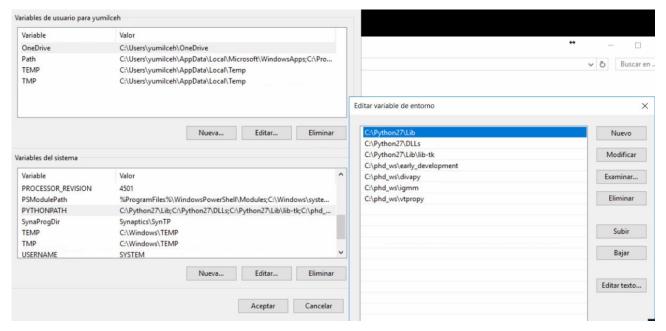
Sistemas de Control

Tutorial

Installing control toolbox for **python 2.7**

Install Python (2.7) https://www.python.org/

Download the last release and install it. For windows users...
https://www.python.org/downloads/windows/

Python will be probably installed in "C:\Python27\", to make it easy to use I strongly
recommend you to add Python to your environment variables as explained in
https://stackoverflow.com/questions/3701646/how-to-add-to-the-pythonpath-in-
windows-7

Then open CMD (System symbol) and execute the command "python"... you shouldn't see any error
Install "pip" https://pypi.python.org/pypi/pip

Download get-pip.py from https://pip.pypa.io/en/stable/installing/

Then in CMD execute "python get-pip.py" where you saved it. If you get any error try again executing CMD with administrator privileges.

Once you installed pip, open a new command line and execute "pip". You should get something like:

```
C:\Users\yumilceh>pip

Usage:
  pip <command> [options]

Commands:
  install                     Install packages.
  download                    Download packages.
  uninstall                   Uninstall packages.
  freeze                      Output installed packages in requirements format.
  list                        List installed packages.
  show                        Show information about installed packages.
  check                       Verify installed packages have compatible dependencies.
  search                      Search PyPI for packages.
  wheel                       Build wheels from your requirements.
  hash                        Compute hashes of package archives.
  completion                  A helper command used for command completion.
  help                        Show help for commands.

General Options:
  -h, --help                  Show help.
  --isolated                  Run pip in an isolated mode, ignoring
                              environment variables and user configuration.
  -v, --verbose               Give more output. Option is additive, and can be
                              used up to 3 times.
  -V, --version               Show version and exit.
  -q, --quiet                 Give less output. Option is additive, and can be
                              used up to 3 times (corresponding to WARNING,
                              ERROR, and CRITICAL logging levels).
  --log <path>                Path to a verbose appending log.
  --proxy <proxy>             Specify a proxy in the form
                              [user:passwd@]proxy.server:port.
  --retries <retries>         Maximum number of retries each connection should
                              attempt (default 5 times).
  --timeout <sec>             Set the socket timeout (default 15 seconds).
```

If it does not work execute again "pip" (Python (or Windows) mysteries).

Install "Ipython" and "Jupyter" http://jupyter.org/install

Just do:

```
python -m pip install --upgrade pip
```

```
python -m pip install jupyter
```

To test your installation open a CMD and try "jupyter notebook". Your browser will be open with the jupyter interface. Otherwise, something is not properly installed.

Finally, our library. Install "Python-control' .

When using windows it is better to use pre-compiled packages. They are available in.

https://www.lfd.uci.edu/~gohlke/pythonlibs/

First lets install the requirements (download from the link above):

numpy, look for:

      numpy-1.13.3+mkl-cp27-cp27m-win32.whl
      numpy-1.13.3+mkl-cp27-cp27m-win_amd64.whl
then in CMD hit: pip install FILE

scipy, look for:

      scipy-1.0.0-cp27-cp27m-win32.whl
      scipy-1.0.0-cp27-cp27m-win_amd64.whl
and use pip to install.

install python control and slycot

https://sourceforge.net/p/python-control/wiki/Home/

pip install control

in linux you need to intall gfortran liblapack-dev liblapack3 libopenblas-base and libopenblas-dev

pip install slycot (if it does not work look for the respective wheel)

en algunos casos hará falta instalar tkinter:
apt install python-tk

Control toolbox documentation available on http://python-control.readthedocs.io/en/latest/intro.html

Numpy tutorial: https://docs.scipy.org/doc/numpy-1.15.1/user/quickstart.html
Matplotlib tutorial: https://matplotlib.org/users/pyplot_tutorial.html

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