**Virtual Programming: Installing the Simulator**

### YOU WILL NEED:

To use our simulator, you will need to have python 3 installed on your machine. We also recommend that you have the numpy library installed, though this should not be necessary.

You will also need the simulator code. This can be found as a zip file on our website (<file:///Users/louisedennis/Sites/pyrobot_website/download.html>). And on the USB stick containing this file. The simulator file is called

pirover\_simulator.zip

### INSTALLATION INSTRUCTIONS:

Unzip the simulator into the location of your choice. It will create a folder call pirover\_simulator. This folder contains two files pysim.py (for use on Windows and Linux machines) and pysimosx.py (for use on Macs)

If possible, add the path to the pirover\_simulator, to the PYTHONPATH used by IDLE (there are instructions for this in the next section). If this isn't possible there are workarounds described in Worksheet 2 (for working at the command line) and Worksheet 5 (for working with files) but it will be an easier experience for students if they do not need to grapple with this at an early stage.

### SETTING THE PYTHONPATH:

Setting up the correct PYTHONPATH varies between operating systems and Python installations, but it is worth trying the following:

**On Linux/Mac:** Add export PYTHONPATH=$PYTHONPATH:/path/to/simulator to the end of the .bashrc file where /path/to/simulator is the path to pirover\_simulator

**On Windows:** There are two set up options for windows:

1. Edit PySimStarter.bat (found in the pirover\_simulator folder) to contain the locations of Python and IDLE. At the moment these are:
   1. C:\Program Files\Python37 (which will need to be replaced with the path to Python on your system)
   2. C:\Program Files\Python37\Lib\idlelib (which will need to be replaced with the path to IDLE on your system)
2. Add PYTHONPATH as a user variable and give it the value %PYTHONPATH%;\path\to\simulator where \path\to\simulator is the path to pirover\_simulator

### RUNNING THE SIMULATOR:

You can run the simulator either from the *command line* or from a Python development environment such as IDLE.

**At the Command line (Windows and Linux):** Type python3 pysim.py in the pirover\_simulator folder then press return.

**At the Command line (Macs):** Type python3 pysimosx.py in the pirover\_simulator folder then press return.

To run the simulator in a Python development environment you will need to follow the instructions for running programs in that environment.

**In IDLE (Windows and Linux):** Open the file pysim.py using the file menu. Then select **Run Module** from the **Run** menu.

**In IDLE (Macs):** Open the file pysimosx.py using the file menu. Then select **Run Module** from the **Run** menu.

### PROGRAMMING SIMULATED ROBOTS:

Instructions for programming the simulated robots can be found in the worksheets.



University of Liverpool, 2020

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