OPEN NEUROSCIENCE: DO IT YOURSELF

We live in the age of the science in a premade kit, and since our work has sometimes unexpected requirements, these resources inside a box are not enough to accomplish very specific goals. On the other hand, when there are commercial solutions available to fulfil those necessities, they entail a big cost that especially young researchers cannot afford.

3D-printing was patented in 1984, but it was not until few years ago when domestic 3D-printers were attainable for everyone. The development of these technologies and Open Source tools like Arduino or Raspberry offer an opportunity without precedents for making lab gadgets that can help emerging groups not only to cope with the lack of economic resources but to give an additional dimension in the assay designing process. These tools can be used to build many devices, from recording chambers to oscilloscopes, and small accessories like spatula or microinjection devices

Here we present some experiences and projects in this area that hopefully will encourage the scientific community to give a step forward in the customization of the experimental design to be able to reduce costs and get much more specific tools to produce a bigger variety of scientific results without renouncing to quality.

EVENT PROGRAM

-        Introduction, possibilities and some experiences of 3D printing in the lab. (Alejandro Carretero) 15 min.
-        Taking advantage from Arduino open-source platform to develop electronic devices for the electrophysiology lab. (Javier Marquez) 15 min.
-        Using Raspberry to automatize behavioural tasks in animal experimentation. (Sergio Castaño) 15 min.
-        Versatile tools for behavioral and systems neuroscience: Magnets, Laser cutter and 3D printing prototypes in Bonsai and PyControl environments. (Cristina Marquez) 15 min.

-        Open source Neuroscience practical sessions (30 min):

    3D printing session: In this activity attendees can physically see different 3D printed devices and 3D-design tools used in neuroscience laboratories.
    Arduino session: Assistants will be able to know first-hand some of the Arduino development boards commonly used in neuroscience and they will have the opportunity to see some projects used in electrophysiology and behaviour laboratories.
    Raspberry session: This session will show the main functions and characteristics of these reduced computer plates including some examples of their use in neuroscience.
    Bonsai and PyControl session: Assistants will explore some applications of these two powerful open-source platforms for behavioral tracking and behavioral control that allows precise acquisition and synchronization with neural data and other data streams.

Additionally, in order to have a more participative event, we encourage the attendants to send their STL files to the email address **doityourself.satellite@gmail.com before 31st of July**, and the 3 most interesting will be 3D-printed and exposed, and the rest of the files will be available for examination in the computer (previous agreement with the designer in case not to be Open Source).