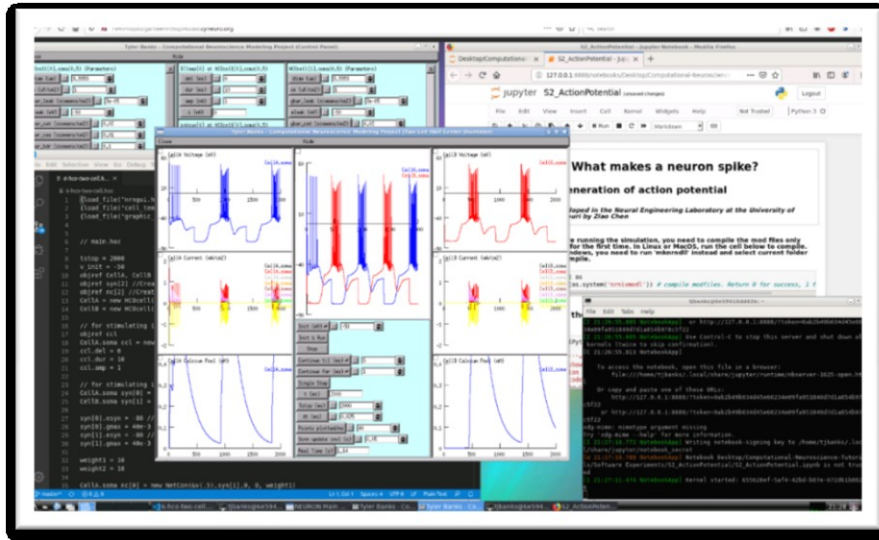# NeuroLab

https://lab.cyneuro.org
Neural Engineering Lab
**University of Missouri**

Introduction

NeuroLab is an online learning platform equipped with the latest computational neuroscience tools. **NeuroLab** does not require you to download any software and can be used on any system with a web browser. Compatible with Windows, Mac, Linux, and ChromeOS. A few of the tools include: NEURON, BMTK, Anaconda3, Jupyter Notebooks, and VSCode.

Contents

Requesting Access to NeuroLab

1. Visit http://lab.cyneuro.org (OR http://155.98.38.242:8080/NeuroLab/#!/ for Beta Access)and click **'Login With Github'** in the upper right corner.
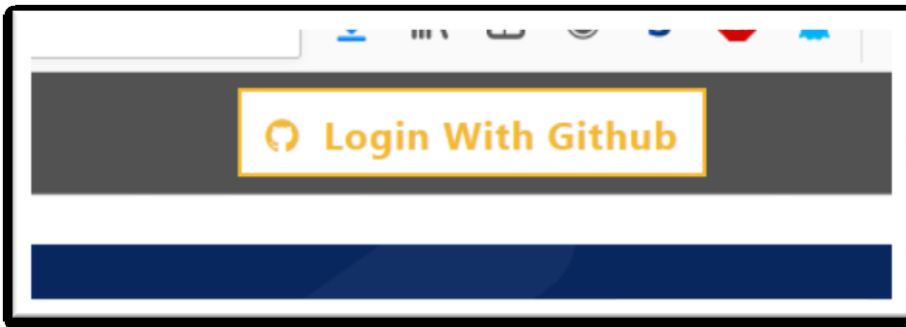

2. Login using your GitHub credentials. <u>If you do not have a GitHub account, you'll need to create one.</u> For additional help with creating a new GitHub account visit https://help.github.com/en/github/getting-started-with-github/signing-up-for-a-new-github-account
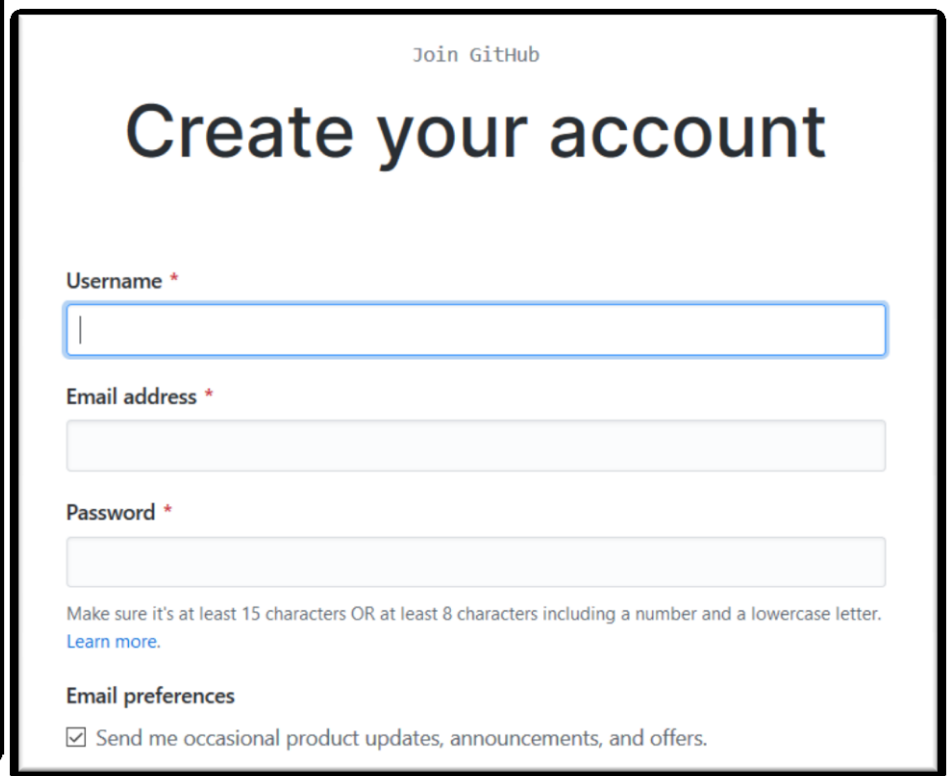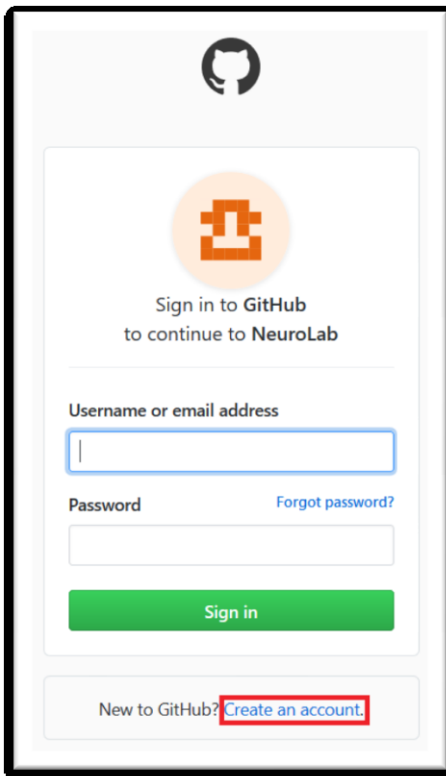
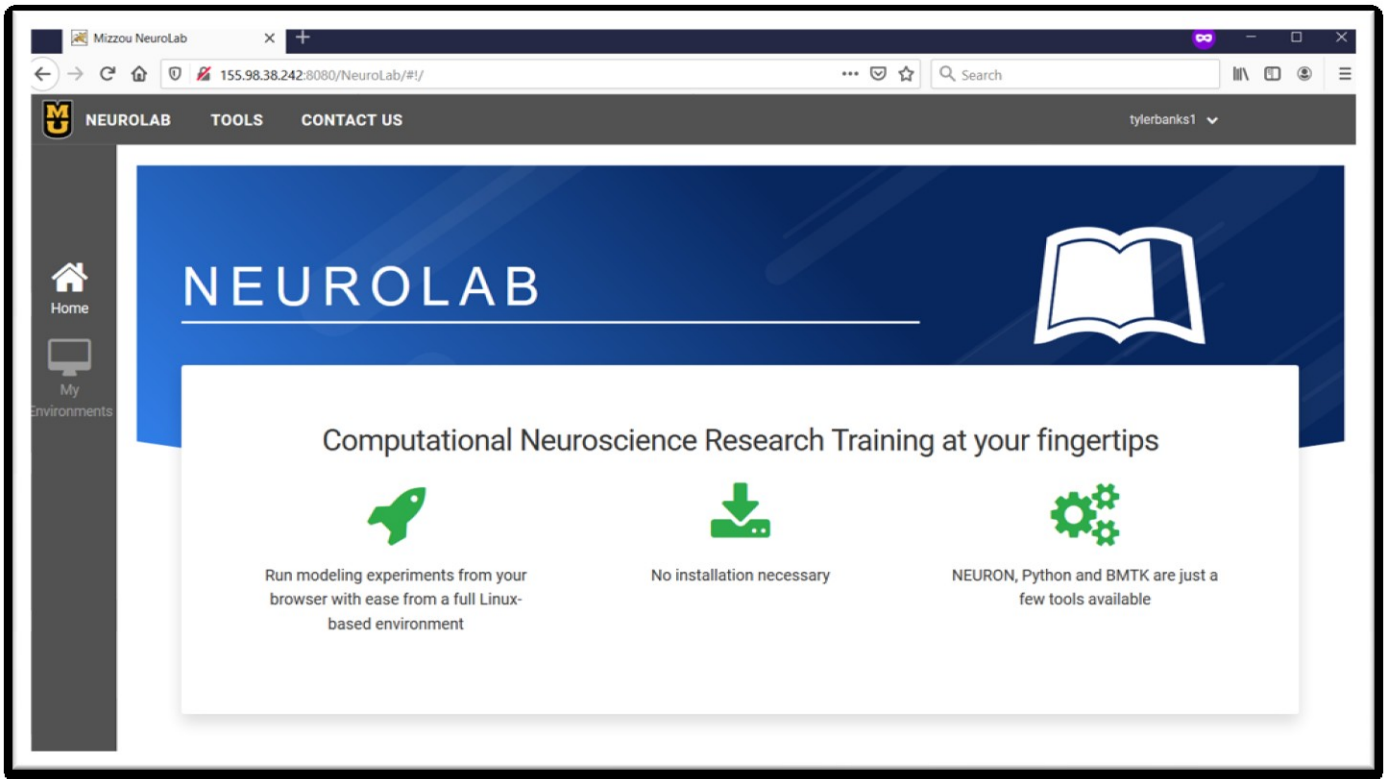3. Next, authorize **NeuroLab** by clicking "Authorize KomalVekaria0309" (backend developer).
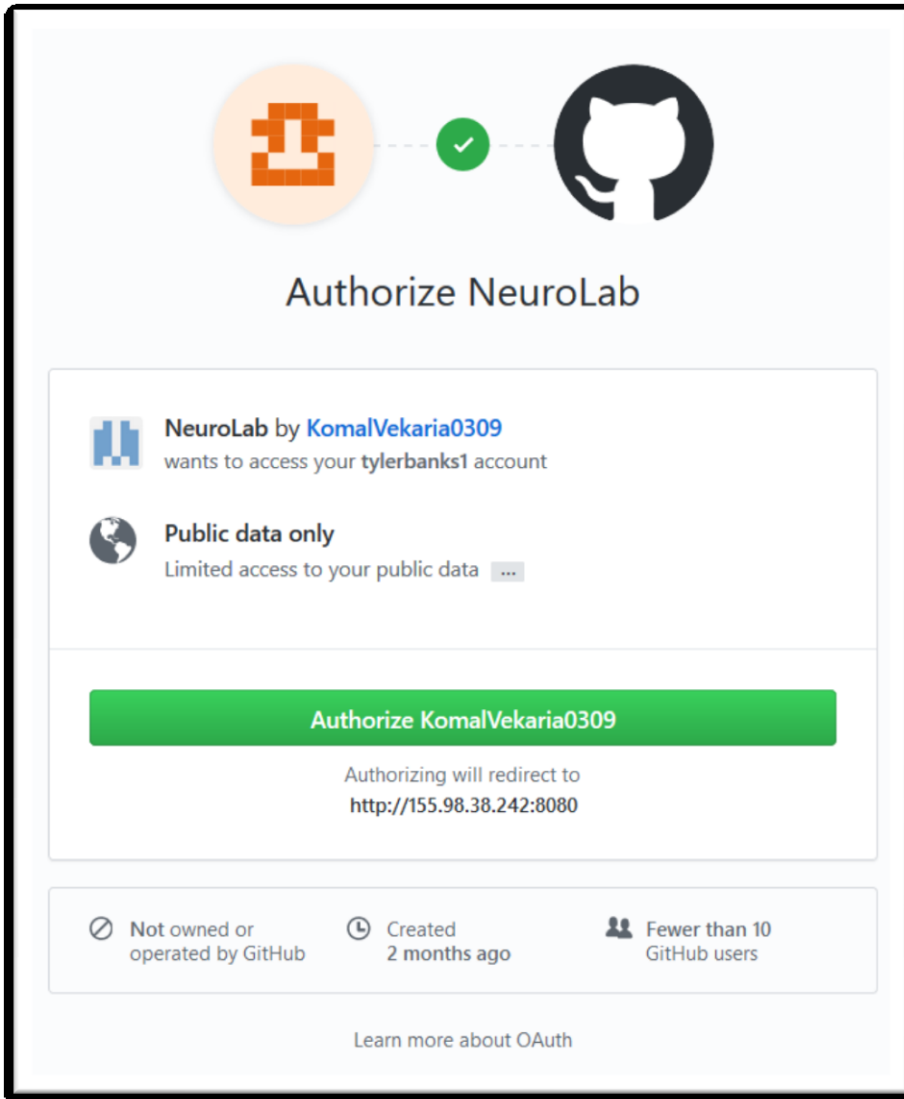
4. You'll then receive a prompt. ==**You must email tbanks@mail.missouri.edu (or your instructor) your GitHub username to have your account activated.**==
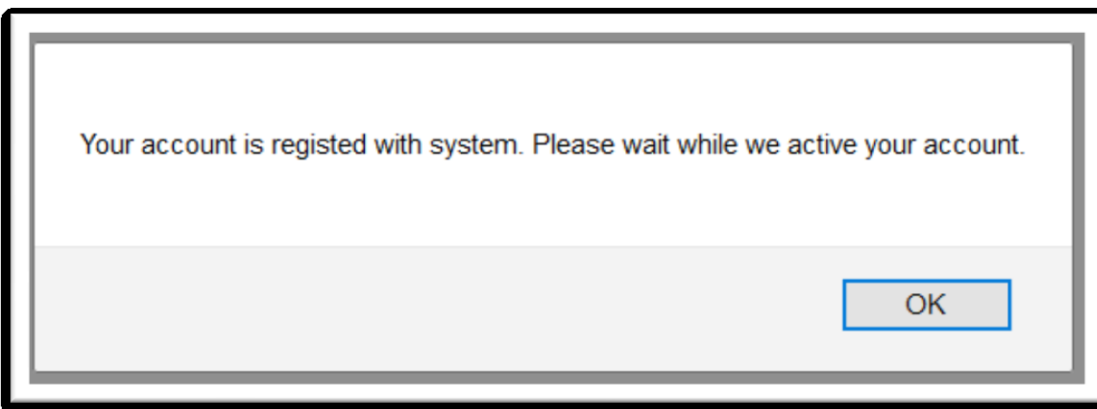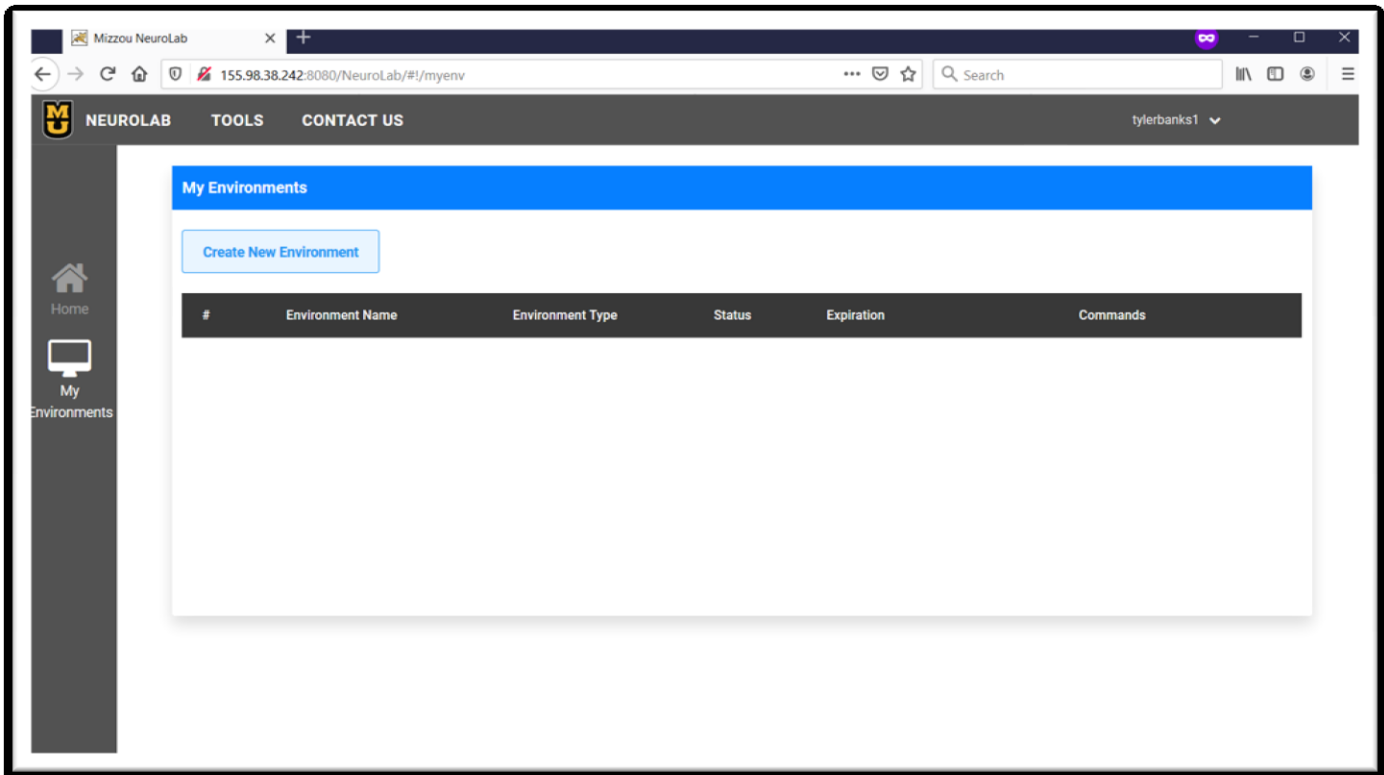
5. Once your account is active, login to the system once again. You'll be presented with the main console page.

Creating an Environment in NeuroLab

1. Once you've obtained and activated your account, you're all set to begin using **NeuroLab**. Click "My Environments" on the left-hand side, then click "Create New Environment"

2. Enter a name for your environment (anything you choose) and select an environment type. In this example we'll use **NeuroLab**:Basic – containing the most essential tools for NEURON. Click "Create Environment"
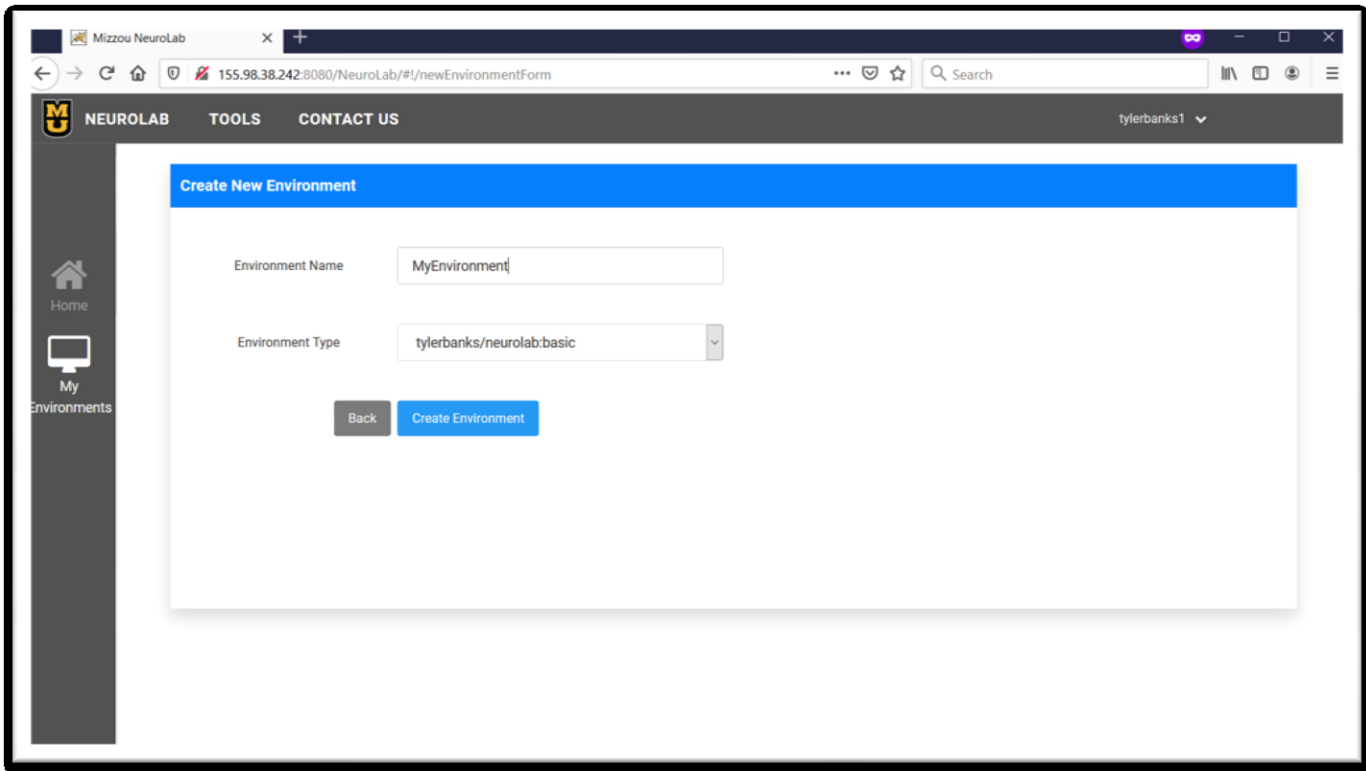
3. From the "My Environments" page, click "Launch" next to your newly created environment.
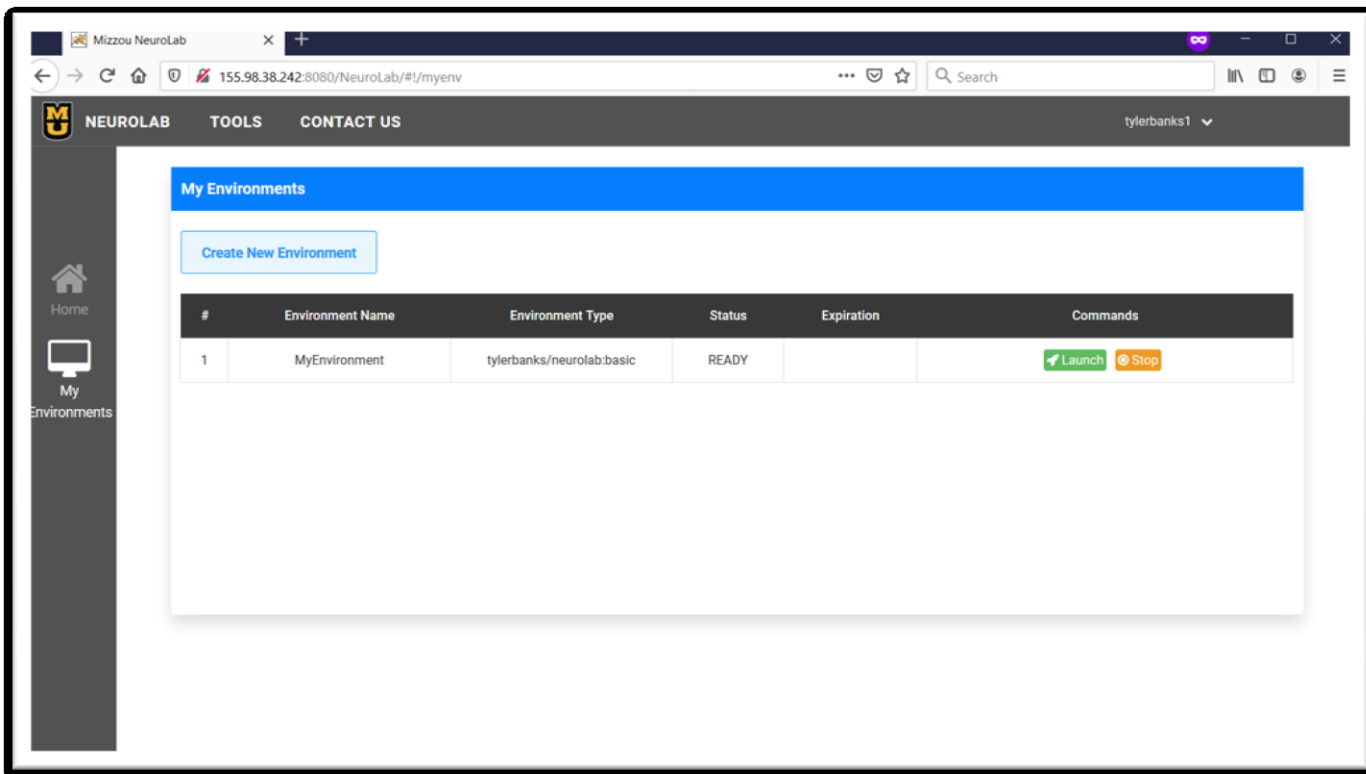
4. You'll then be prompted for a **username and password**. **Enter your GitHub username for both.**
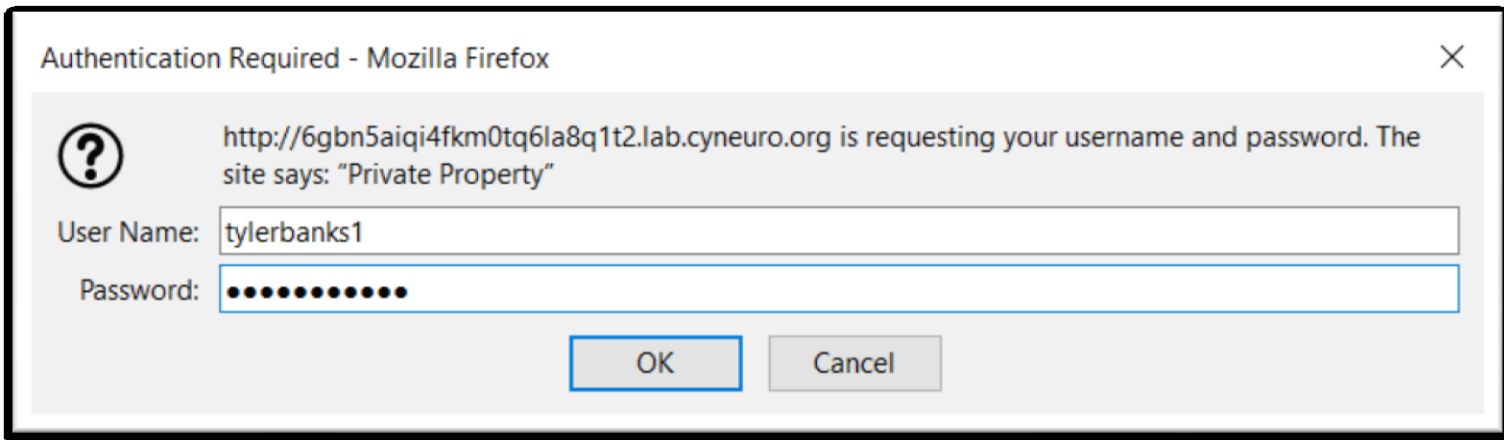
5. You're now ready to conduct research in **NeuroLab**!
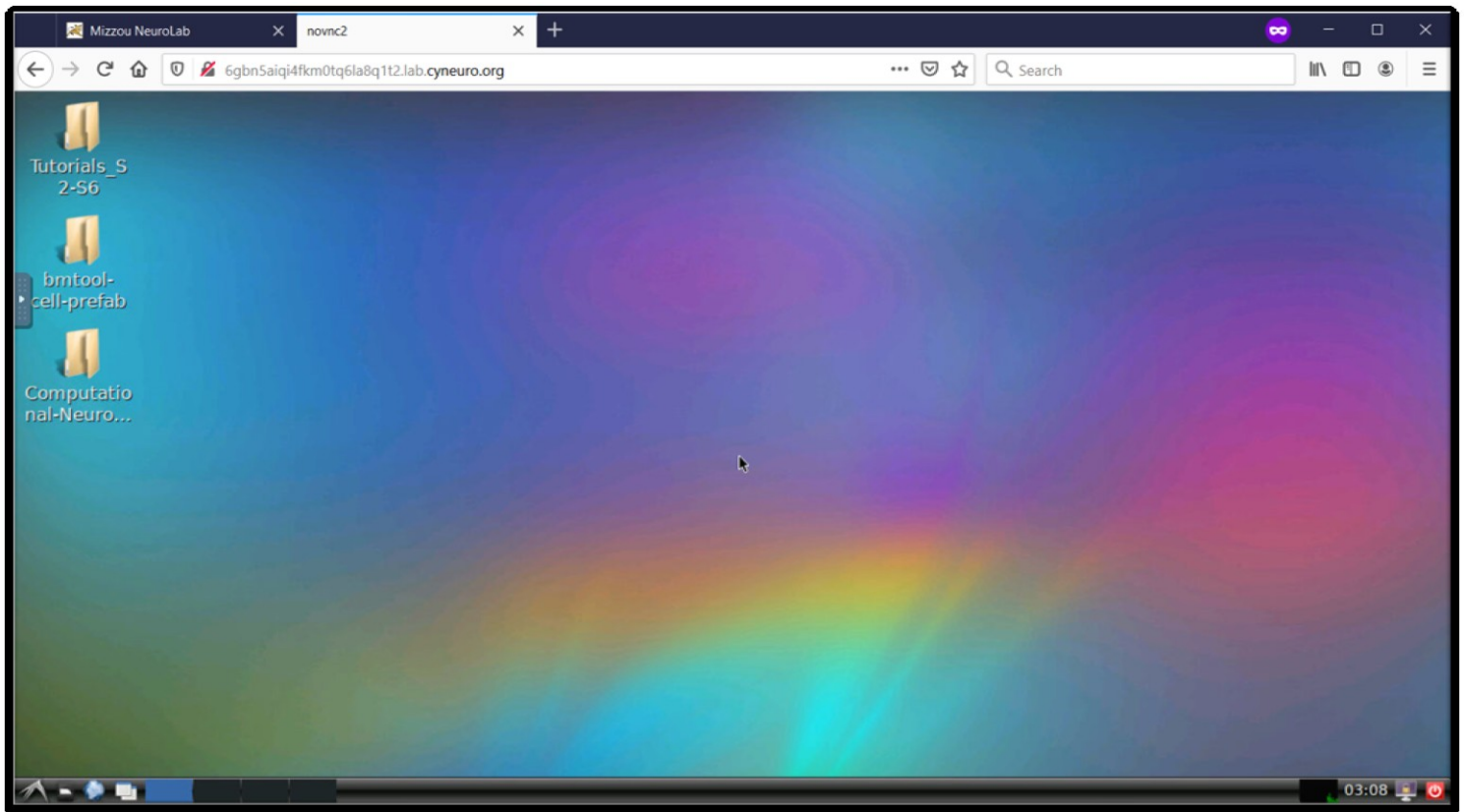
Using NeuroLab Tools

Terminal

1. Click Start, System Tools, LXTerminal
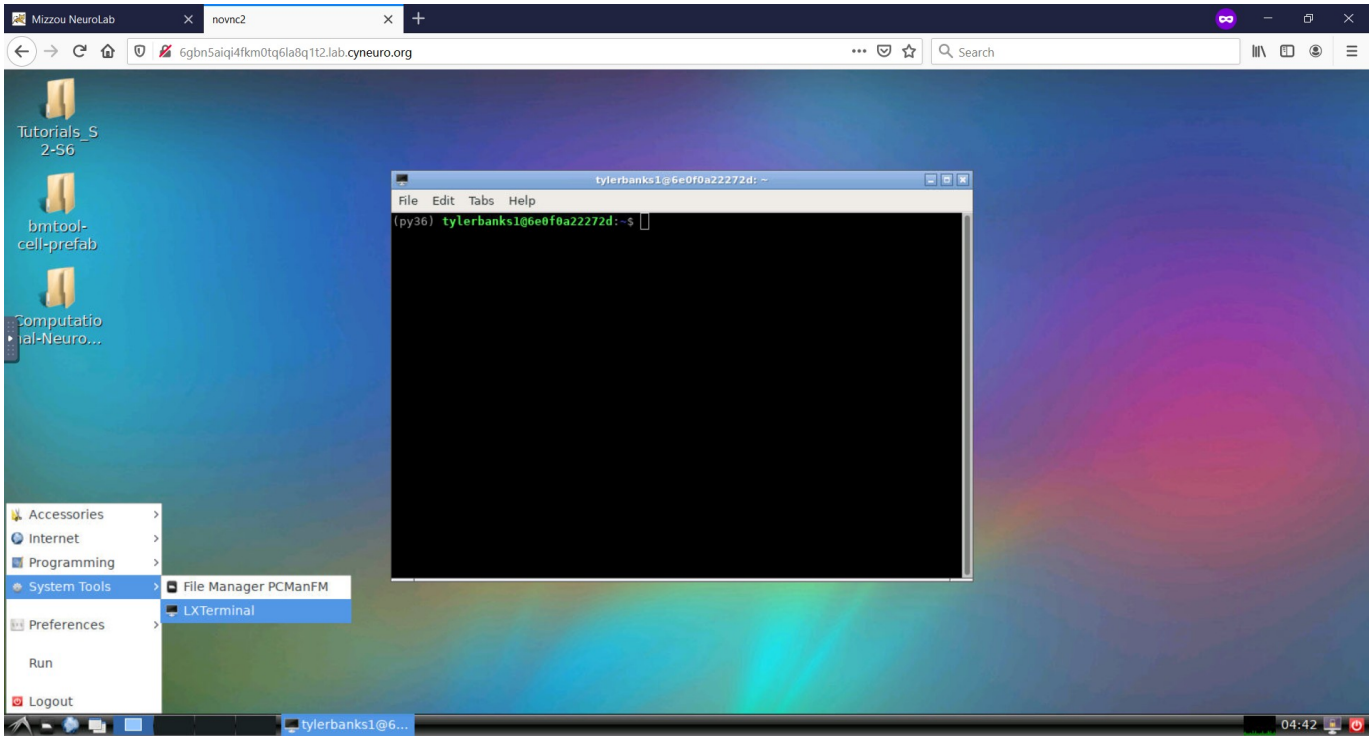
2. From here, you'll be able to execute commands like: `git`, `nrnivmodl`, `nrngui`, `jupyter-notebook`, etc.

Jupyter Notebooks

1. From the terminal, execute '`jupyter-notebook`' or '`jupyter notebook --ip=127.0.0.1`'
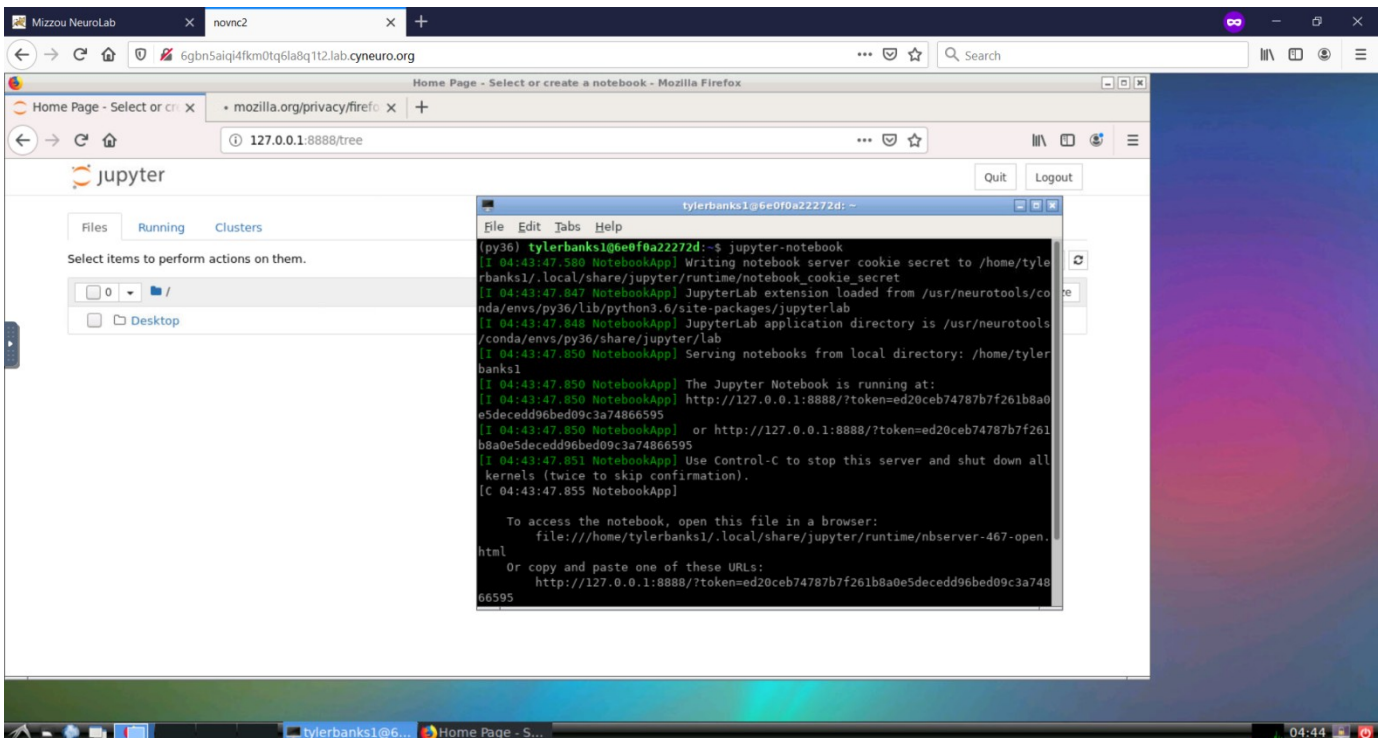
NEURON Sample Code (eg: S2)

1. From the terminal execute the following commands:
   - `cd Desktop/Tutorials_S2-S6/S2/S2_ActionPotential/`
   - `nrnivmodl`
   - `nrngui ActionPotential.hoc`
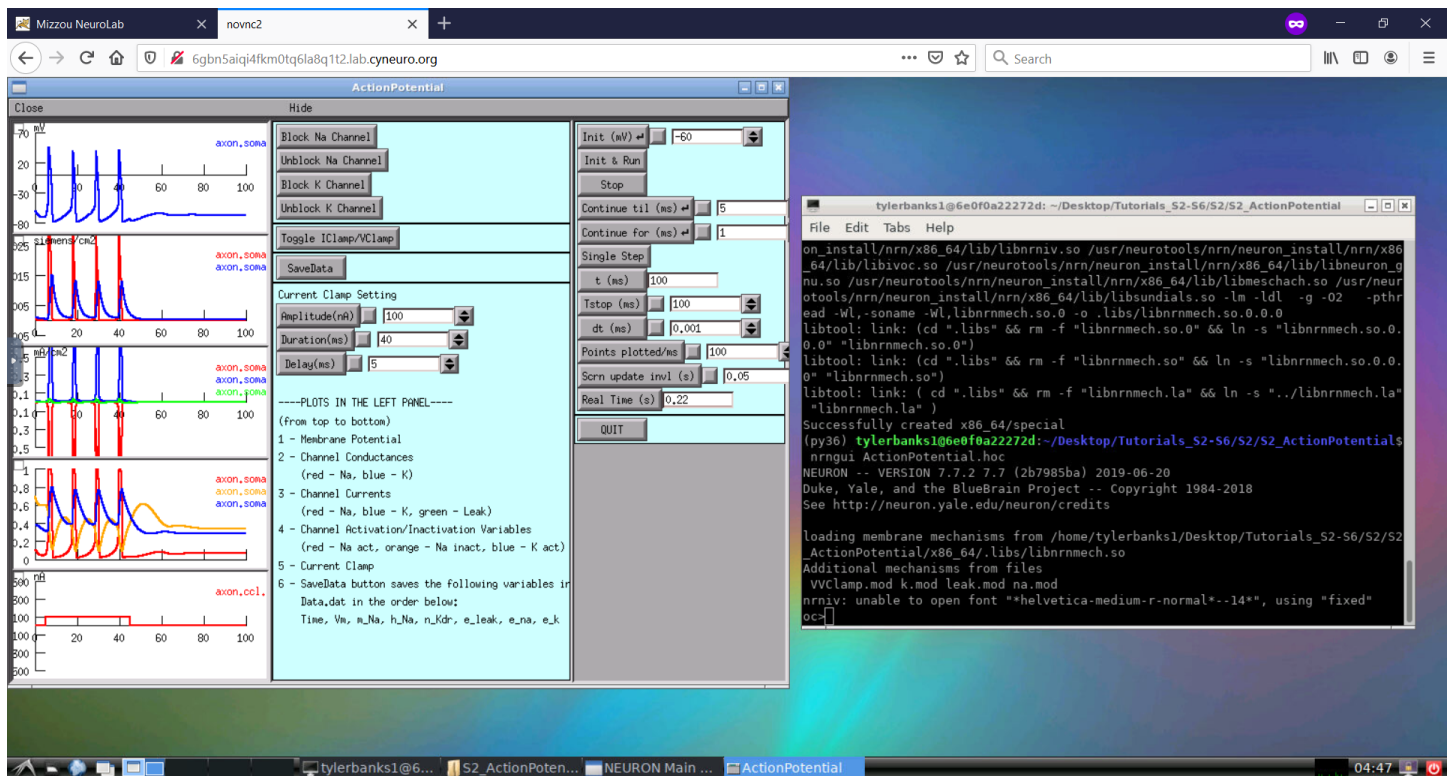
Python

1. From the terminal run '`python`' to reach the python interpreter. A python 3.6 environment has been setup and is activated from anaconda.

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Additional Information

Internet Access

Currently, GitHub.com and other GitHub pages are the only external sites accessible through the virtual environments. If you have a valid case/need for other external sites contact tbanks@mail.missouri.edu or your instructor. Some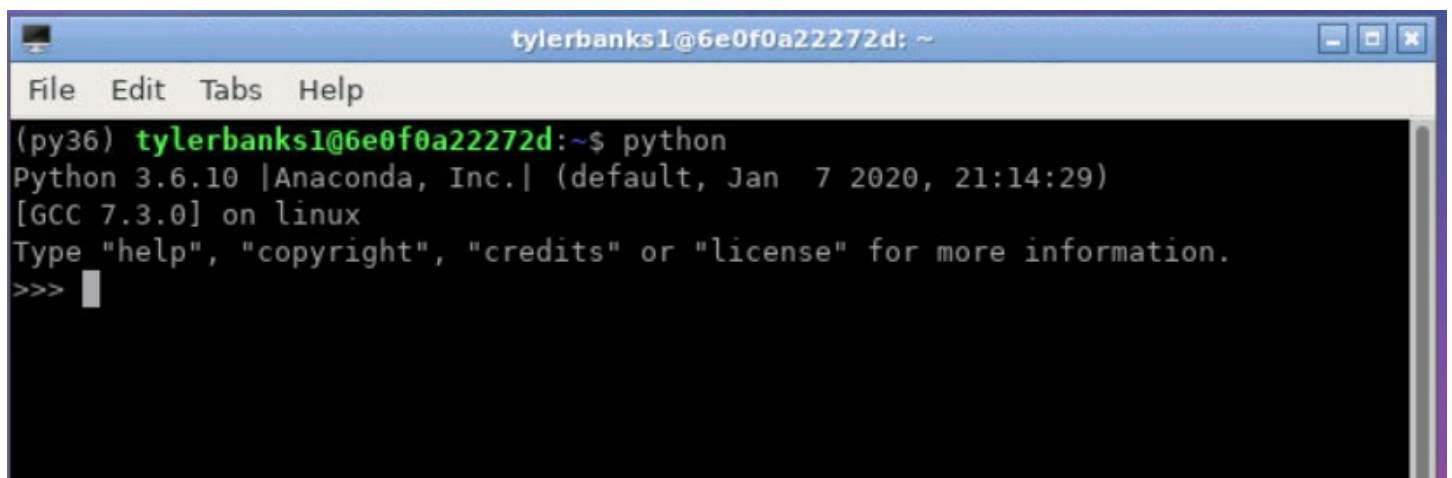 external links (videos, images, hyperlinks, etc.) in the Jupyter notebooks of Computational-Neuroscience-Tutorials may not work. Please visit the external resources in your native browser.

Screen Resize

If your screen size is too small or too big simply add /resize to the end of your URL.

Eg:

http://70e890mlor33b0kjudlsmk6a.lab.cyneuro.org

Becomes:

http://70e890mlor33b0kjudlsmk6a.lab.cyneuro.org/resize
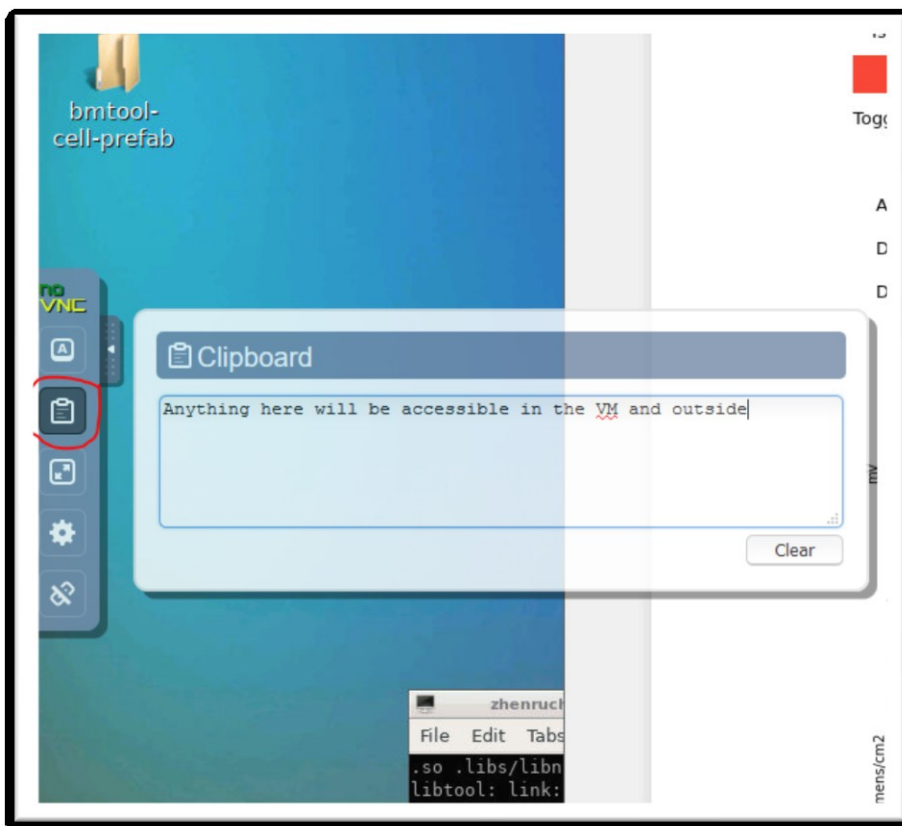
And press enter. Your page will refresh and the screen size will fit your current browser window. **Caution**: this will close all windows currently open in **NeuroLab**.

Shared Clipboard

You have the option to copy items in and out of the window. Use the clipboard from the panel on the left of the screen.

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File Transfer

All file transfers between the environment and your local desktop will need to be facilitated through GitHub. See the following resource on using GitHub to upload and download files: https://product.hubspot.com/blog/git-and-github-tutorial-for-beginners

Acceptable Use

Please read this acceptable use policy ("policy", "AUP") carefully before using **NeuroLab** ("website", "service") operated by the Neural Engineering Lab at The University of Missouri at Columbia ("us", 'we", "our").

Services provided by us may only be used for lawful purposes. You agree to comply with all applicable laws, rules, and regulations in connection with your use of the services. Any material or conduct that in our judgment violates this policy in any manner may result in suspension or termination of the services or removal of the user's account with or without notice.

Prohibited use

You may not use the services to publish content or engage in activity that is illegal under applicable law, that is harmful to others, or that would subject us to liability, including, without limitation, in connection with any of the following, each of which is prohibited under this AUP:

- Phishing or engaging in identity theft
- Distributing computer viruses, worms, trojan horses or other malicious code
- Promoting or facilitating violence or terrorist activities
- Infringing the intellectual property or other proprietary rights of others

Enforcement

Your services may be suspended or terminated with or without notice upon any violation of this policy. Any violations may result in the immediate suspension or termination of your account.

Reporting violations

To report a violation of this policy, please contact us.

We reserve the right to change this policy at any given time, of which you will be promptly updated. If you want to make sure that you are up to date with the latest changes, we advise you to frequently visit this page.