

GUI4GUI for Dummies:

Simplified instructions for the CNS Tech Lab Automated Matlab GUI Builder

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To avoid panic read this before you read the official `gui4gui` readme tutorial.

First of all, download and run some of the software posted in the Tech Lab repository to familiarize yourself with the format of the GUIs. You will notice that very complex and very simple software have a similar GUI. This is intended to facilitate users by having a uniform, familiar environment, where programmers are asked to include several supportive documents (in PDF format) to help users understand and run the software.

Once you decided to use the GUI4GUI and you have downloaded the GUI4GUI software, dump all the files you plan to use for your GUI in the main GUI4GUI directory. Files required for the GUI are: at least one m-file, and full documentation of it.

There are many files when you unzip GUI4GUI and it may look scary. Luckily you only worry about the `main_inputfile.m`. This is the only thing you need to touch.

First run:

```
>> edit main_inputfile.m
```

Wow, there is a lot of code, what do I do? Don't worry: the development of the GUI template is based on a fairly complicated model MODE. If you have a fairly simple model code, for example an HP SyNAPSE microcircuit, over half of the code can be commented out or deleted automatically! (But first you need to understand what to touch, and what not to touch.)

What does `main_inputfile.m` do anyway?

`main_inputfile.m` file controls the parameters to create the drop down menu structure of the GUI. Each tab in the drop down can:

- ❖ open a file
- ❖ run some code
- ❖ or cascade into further dropdowns

Step 1: Set filename and main image

Scroll down towards the bottom of `main_inputfile.m` to find this:

```
GID.guiName = 'SpikingNeurons'; %%%
GID.Nmenus = Nmenus;
GID.frontImage = 'izhik.gif'; %%%
GID.bgcolor = 'white';
GID.fontsize = 10;
GID.fontweight = 'bold';
GID.position = [0.1 0.1 0.6 0.6];
GID.resize = 'off';
GID.task = task;
```

You need to change two lines marked by %%% above:

```
GID.guiName = 'YOUR_GUI_NAME_HERE';
```

This will be the name of the output GUI m-file.

```
GID.frontImage = 'Your_Main_Display_image.jpg/gif';
```

This will be the image displayed when the GUI is opened. Use .jpg or .gif to avoid potential problems. We know these formats work.

Step 2: Create the menu items.

Here we will create the dropdown structure. Every one of the 8 task bar menus that appears in the GUI corresponds to code that looks something like this:

```
Task(6).name = 'Run';
Task(6).string = { ...
    100 'Reaction time task'  ''  ''  ...
    110 'Description'  'doc1'  'RTtask_description.pdf'  ...
    120 'Replication test'  ''  ''  ...
    121 'Description'  'doc1'  'RTtask_description.pdf'  ...
    122 'Run'  'run1'  'RTtasknew(1,1,5,5,5,55);'  ...
    130 'Advanced run'  ''  ''  ...
    131 'Description'  'doc1'  'RTtask_description.pdf'  ...
    132 'Run'  'run1'  'Reaction_time_task_GUI'  ...
    . . . . .
    230 'Advanced run'  ''  ''  ...
    231 'Description'  'doc1'  'FDtask_description.pdf'  ...
    232 'Run'  'run1'  'Fixed_duration_task_GUI'  ...
};
```

WARNING: Do not change the number of task bar menus, or change the task name (File, Model, Articles, etc). CNS wants you all to build uniform GUIs, and these taskbar items have been predetermined by postdocs at the department! If your GUI does not conform to the uniform feel of the Tech Lab website software repository GUIs it will be rejected by the site admin! [For your own projects not related to uploading to the TL website, naturally you can do whatever you want.]

YOU WILL ONLY NEED TO TOUCH THE LINES THAT LOOK LIKE

```
000 'text1' 'text2' 'text3'...
```

As I said earlier, clicking on a menu items can result in two outcomes: the opening of a file, or the execution of some code, or further cascading. This is well documented in the comments towards the top of *main_inputfile.m*.

The first 3 digit number is the index of the menu item. You can have 3 cascading levels of menu items. The left-most digit is reserved for the 1st level menu. the middle digit indicates the second level menu and the third level menu corresponds to the rght-most of the three digits. A non-zero integer denotes the menu item for that menu level. A "0" is used as a place holder (i.e., all 3 digits must be in place). For example, "100" means menu item 1 of level 1. Read gui4gui readme for details, but it should be straight forward. Each entry has 9 possible values, so there are 10^3 possibilities to choose from!

The strings in the asterisks control what happens if you click on a menu item.

text1: the string to be displayed in the dropdown menu at position of the corresponding index.

tex2: can have two main types of arguments:

- 'doc1' opens a document
- 'run1' runs an m-file.
- '' means we cascade to next level.

If you see the 'run2' in the file taskbar menu don't worry about what it means for now, and don't touch it! It has to do with exiting the GUI. Read the official readme for details.

text3:

- If you gave 'doc1' for Text 2, than here you should specify the file name of the file you can open. E.g. 'my_abstract.pdf'
- If you gave 'run1' then type the name of the matlab function you would like to run. E.g. 'myfunction(argumetns)'
- It does not matter if no such file or function exists at the time the GUI is compiled, the GUI will not need it.

Repeat creating the menu definitions as described above until you have all the menu items you want.

Tip: If you mess up *main_inputfile.m* you can always reload the default template:

```
>> copyfile main_inputfile.m.DONOTDELETE main_inputfile.m % copy file
```

Step 3: Compile the GUI

Finally, run the following lines in Matlab:

```
>> GID = main_inputfile % GID is the menu data structure
>> buildMainGUI(GID) % build GUI with GID
```

The output GUI you need is one m-file `YOUR_GUI_NAME_HERE.m`. Put it in the same directory as the files you dumped into the main directory for the GUI4GUI. Zip and upload to the TL website software repository.

A large, stylized, blue 3D-style text graphic that reads "You're Done!". The letters are thick and have a slight shadow, giving them a three-dimensional appearance. The text is positioned in the lower half of the page, above a horizontal line.

Note: There is also a second way, a GUI interface for making a GUI. Unfortunately, according to the developer, the funding of this project was cut 5 weeks before its scheduled end date, so it was finished in a hurry. Don't be surprised if you find bugs here. If you want to play around with it type `>>gui4gui` in Matlab. If you know Matlab you're better off with the first method I just describe above.