

# CPC Zürich 2023 Practical Tutorial J

## Regression DCM using TAPAS

### Installation Guide

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## 1 rDCM Toolbox

In order to install the regression Dynamic Causal Modeling (rDCM) Toolbox, please follow these steps:

1. **Install MATLAB:** For this tutorial, you need MATLAB with the statistics toolbox. We recommend using MATLAB R2016a or newer (<https://www.mathworks.com/products/get-matlab.html>).
2. **Install a C compiler:** For the rDCM toolbox, you need a C compiler alongside MATLAB. We recommend **MinGW** (Windows), **Xcode** (Mac) or **GCC** (Linux) which are available free of charge. Detailed instructions can be found at: <https://ch.mathworks.com/support/requirements/supported-compilers.html>.
3. **Download TAPAS** (Translational Algorithms for Psychiatry Advancing Science): Download the TAPAS toolbox (as zip-file) at: <https://translationalneuromodeling.github.io/tapas/#download>
4. Put the code and the material in a folder which you will use for the practical tutorial (e.g., Desktop/CPC2023/rDCMTutorial). **Make sure you do not have any spaces in the titles of your folders!**
5. **Open MATLAB.** You will see the following interface:

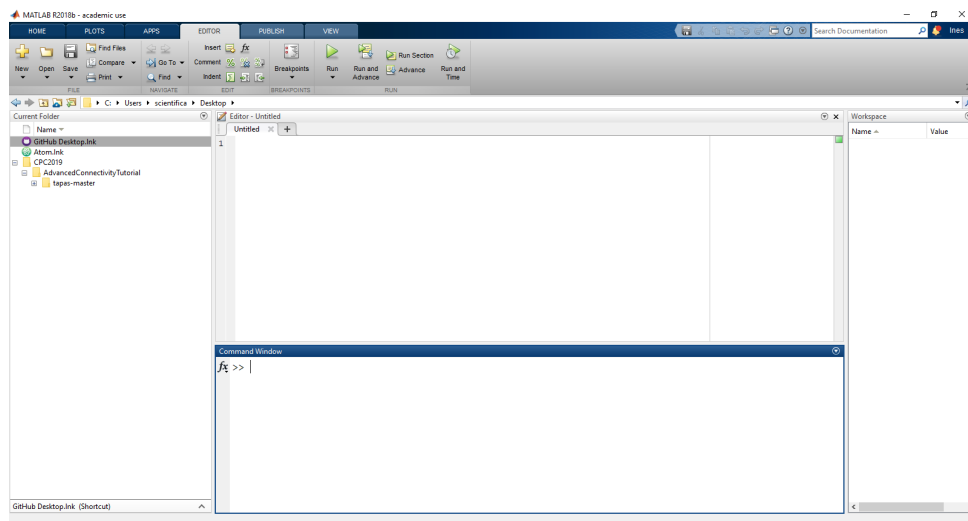


Figure 1: Illustration of MATLAB interface.

6. **Setup TAPAS:** Unzip the zip-file and add the "tapas/rDCM" folder to your MATLAB path by, in MATLAB, navigating to the folder you prepared (e.g., rDCMTutorial). Then right-click on the folder and select *Add to Path* → *Selected Folders and Subfolders*.

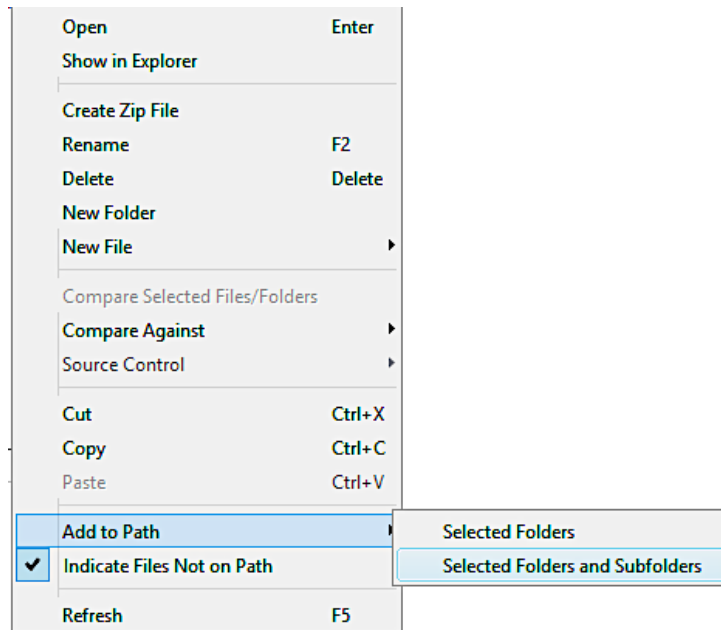


Figure 2: Illustration of how to add a path (and all its subfolders) in MATLAB.

7. Well done! The rDCM toolbox is ready for use. If you are keen, you could already have a look at the manual of the toolbox and run the short beginner's tutorial (`tapas_rdcmtutorial.m`), which is located in rDCMs code folder.

## 2 SPM12 Toolbox

Furthermore, the tutorial will make use of the **S**tatistical **P**arametric **M**apping (SPM) Toolbox. In order to install SPM12, please follow these steps:

1. **Download SPM12** at: <https://github.com/spm/spm12>
2. Put the code and the material in a folder which you will use for the practical tutorial (e.g., Desktop/CPC2023/rDCMTutorial). **Make sure you do not have any spaces in the titles of your folders!**
3. Add the `spm12` folder to your MATLAB path. For this, in MATLAB, navigate to the folder you prepared (e.g., `rDCMTutorial`). Then right-click on the folder and select *Add to Path*→ *Selected Folders* (see step 6). **Important: Do not add the subfolders for SPM12.**
4. Type "`spm`" into the command window of MATLAB and press Enter. If the installation was successful, this will open the SPM interface:

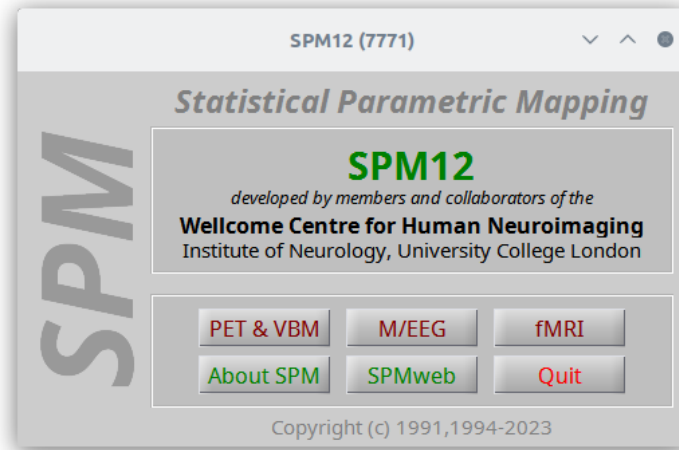


Figure 3: Illustration of the SPM interface.

Well done! You are all set up for the practical session.

If you have trouble getting to this point before the Practical Tutorial Session, please contact Imre Kertesz ([ikertesz@biomed.ee.ethz.ch](mailto:ikertesz@biomed.ee.ethz.ch)).

We look forward to seeing you all at the CPC Zürich 2023!

If you have the following issues with MEX files on macOS Catalina, Big Sur, Monterey, Ventura:

"\*.mexmaci64" cannot be opened because the developer cannot be verified. macOS cannot verify that this app is free from malware

or

Code signature not valid for use in process using Library Validation: library load disallowed by system policy,

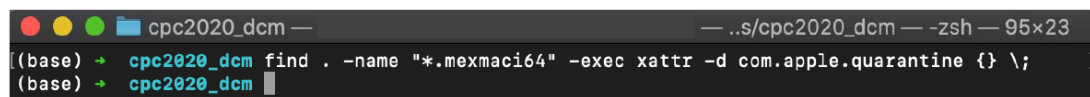
open a Terminal and navigate to the folder where you placed your **spm12** folder. In the following example, the **spm12** folder was placed in a folder named **cpc2020\_dcm** in the **Downloads** folder.



```
cpc2020_dcm — ..s/cpc2020_dcm — zsh — 95x23
(base) → ~ cd Downloads/cpc2020_dcm
```

Then type the following command:

```
find . -name "*.mexmaci64" -exec xattr -d com.apple.quarantine {} \;
```



```
cpc2020_dcm — ..s/cpc2020_dcm — zsh — 95x23
(base) → cpc2020_dcm find . -name "*.mexmaci64" -exec xattr -d com.apple.quarantine {} \;
(base) → cpc2020_dcm
```

This should solve the problem and allow you to run the demo. This solution was taken from the SPM Wiki:

[https://en.wikibooks.org/wiki/SPM/Installation\\_on\\_64bit\\_Mac\\_OS\\_\(Intel\)#macOS\\_Catalina](https://en.wikibooks.org/wiki/SPM/Installation_on_64bit_Mac_OS_(Intel)#macOS_Catalina)