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**Work culture in the lab**

Documentation is the main process in the scientific workforce. We expect the lab members to document their findings making knowledge transfer smooth and transparent as possible.

As a university lab, our moral responsibility is to make our codes/algorithms/hardware design available to anyone in the world, and I believe this culture will bring quality to our research and moral responsibility to maintain the project in its highest form. However, PI has the veto power to revoke any decision on what codes are made available to the public.

We maintain all our algorithms in the labs' GITHUB repository, and the data sharing is done exclusively via your academic Dropbox account. We encourage lab members to use GIT to maintain their respective projects. The student must maintain a Project directory with their Dropbox account, and please use the academic Dropbox account provided by the university to back up your data.

**How to organize your files**

We encourage homogeneity in our working pattern. Hence, every new project in our group must have a dedicated directory with a uniform naming pattern and a file structure. You may use this document as a guideline to understand existing projects. Also, we strongly advise maintaining this file structure in your project before uploading codes/data into our lab's Dropbox or GITHUB repository. The following script may be used as a guideline to understand how we have organized the project. The project directory shared with you has two main folders: (1) Friday files and (2) the project folder.

1. **Friday\_Files**: We maintain a repository of MATLAB scripts for performing basic physiological processing.
   1. Every lab member uses this Friday Files, and hence, please update the repository if you find any "Bugs." Most importantly, every line in the repository is provided with comments to help anyone read through the project easily. We strongly recommend you to follow this work culture to package our work more professionally.
   2. You are more than welcome to switch to other computation platforms like Python, and while doing so, our group strongly recommends sharing our code in the **Friday\_Files** repository.
   3. While creating a code fragment, which others can re-use in their projects for a specific task, please upload them in "Friday Files" with a detailed list of instructions on using it. Our group strongly encourages a work culture where each lab member helps each other and prevents code redundancy and unnecessary labor to re-invent the wheel.
   4. We welcome lab members to use code developed by other programmers, and while doing so, please upload them into our **Friday\_Files** by giving due credits to the author. Also, while uploading the code fragment, please create a wrapper function to the code to make it easy for other students to implement the code.
   5. Add Friday files into the matlab search path using a startup.m. Find more details here: [Specify Startup Options - MATLAB & Simulink (mathworks.com)](https://www.mathworks.com/help/matlab/matlab_env/startup-options.html)
2. **Project\_x**: We strongly advise every lab member to maintain the file hierarchy discussed here in your project to maintain uniformity in our group's work culture. Any project folder will have the following four subfolders.
   1. “**Data Folder**”: This folder contains data used in the project, and the Data is divided based on the study protocol. Each sub-folder is a protocol and refers to a study conducted under the umbrella of the main project. If you create a data folder for a new project, it is mandatory to add **gitignore** files as Data is backed up only in the Dropbox. The sub-folder in "Data folder" contains the following:
      1. **Readme.txt** file has instructions on the protocol of the experiment. It explains the format/protocol of the study, the device used, and the contact details of the author/lab member who conducted the study. If any data downloaded from a public platform, the Readme.txt file should have sufficient information about the experiments and reference to the academic literature that discusses the dataset.
      2. **Experimental\_data**: It contains de-identified data of the experiment and will also have a readme.txt file that explains how the author has organized the Data.
      3. **Processed\_Data\_x**: It contains processed data in the form of detections of the experimental data. For instance, if the protocol measures ECG, the data folder may contain detection for R waves of the ECG. Processing may vary with the project, and monitor the readme.txt file to find the current status of the pre-processing. Our group strongly recommends document each processing in a separate folder to make the algorithm more transparent and readable. If you perform any new pre-processing on the experimental data, please create a folder with a name in the format "**Processed\_Data\_x**." Please read how to maintain the processing code (Read section "Code folder").
   2. “**Code folder**”: This folder has a similar file structure as the "Data Folder." The folder may have files in the format "**protocol\_x**", and each protocol folder may have multiple files in the form "**Process\_code\_x**" or "**Analysis\_code\_x**."
      1. If the subfolder is titled "**Process\_code\_x**," it mainly pre-processes the **Experimental\_data** to generate **Processed\_Data\_x**. Each folder will have a readme.txt file with instructions about the processing steps.
      2. If the subfolder is titled "**Analysis\_Code\_x**," it runs the scripts to generate the results from **Processed\_Data\_x**. These folders also contain a "Results section" that has all outputs from the analysis.
   3. “**Paper folder**”: You can find any papers/academic literature published on this project from our lab here.
   4. “**Hardware folder**”: We want to answer the question of "Repeatability of a scientific experiment" with the data in this folder. We want to help other groups who wish to repeat our experiment by providing solid documentation. The documentation may be in schematics like PCB design or any 3D models, or any other tech blueprints.
      1. Each schematic should have a readme.txt file that defines the purpose of the product.
      2. If using 3D printing, please upload the STL and Solidworks files. We strongly encourage photographing or videotaping all stages of hardware design to make a YouTube video for helping others to repeat the experiment.