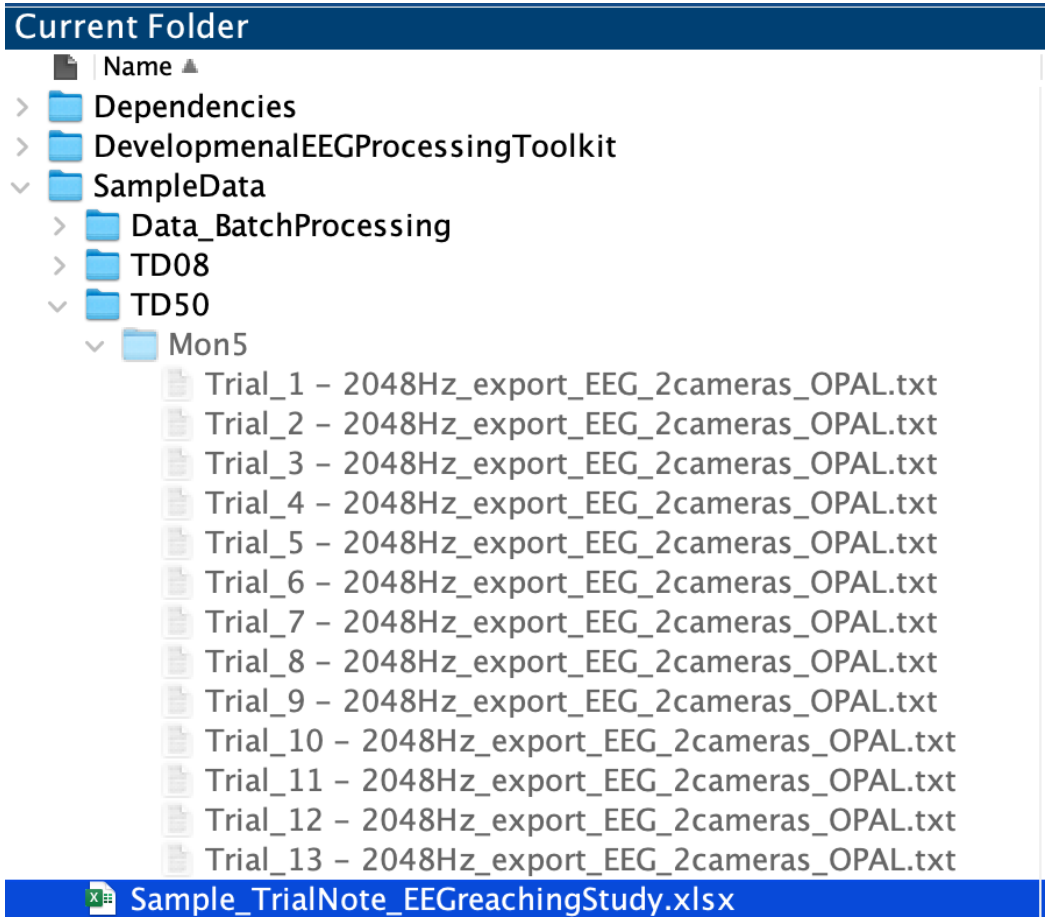
EEGWISE

As of 3/21/2025

Prerequisite: Mon@ folder inside TD@@ folder



DataPreparation_Biosemi.m

While **Mon@** folder is no longer *asked for,* the intended folder structure is still to **KEEP Mon@** folder inside a **TD@@** folder.

```
%% Initialize directories
addpath(genpath('./Dependencies/'));

% Modify to the data directory on your computer
DataDir = '/Users/joh/Documents/Personal/Mentoring/NR/EEGWISE/SampleData';
% Modify to the directory for the trial information on your computer
trialInfo = readtable('/Users/joh/Documents/Personal/Mentoring/NR/EEGWISE/Sampl

% modify the participant and visit session for analysis
Pat = 'TD08'; TD50

% List all files and folders in the d
PatDir = dir(fullfile(DataDir, Pat));
% Remove "." and ".." entries and kee
PatDir = PatDir([PatDir.isdir]); % Ke
```

```
dir List folder.
   dir NAME lists the files in a folder.
```

```
>> fullfile(DataDir, Pat)

ans =

    '/Users/joh/Documents/Personal/Mentoring/NR/EEGWISE/SampleData/TD50'
```

fullfile()* makes the absolute, concatenating *DataDir* and *Pat

```
>> dir('/Users/joh/Documents/Personal/Mentoring/NR/EEGWISE/SampleData/TD50')

.     ..     Mon5
```

dir() lists files and folders INSIDE the given path

DataPreparation_Biosemi.m

While **Mon@** folder is no longer *asked for,* the intended folder structure is still to **KEEP Mon@** folder inside a **TD@@** folder.

```
%% Initialize directories
addpath(genpath('./Dependencies/'));

% Modify to the data directory on your computer
DataDir = '/Users/joh/Documents/Personal/Mentoring/NR/EEGWISE/SampleData';
% Modify to the directory for the trial information on your computer
trialInfo = readtable('/Users/joh/Documents/Personal/Mentoring/NR/EEGWISE/Sampl

% modify the participant and visit session for analysis
Pat = 'TD08';

% List all files and folders in the directory
PatDir = dir(fullfile(DataDir, Pat)); % Using fullfile for safer path handling
% Remove "." and ".." entries and keep only folders
```

PatDir

3x1 struct with 6 fields

Fields	name	folder	date	bytes	isdir	datenum
1	'.'	'/Users/j...	'21-Mar-...	0	1	7.3970e+05
2	'..'	'/Users/j...	'21-Mar-...	0	1	7.3970e+05
3	'Mon5'	'/Users/j...	'21-Mar-...	0	1	7.3970e+05

PatDir is a *struct*, a MALTAB data type. A struct will have different *fields*. These fields contain information about the files/folders inside the *path* provided. In our example, **this**:

```
>> dir('/Users/joh/Documents/Personal/Mentoring/NR/EEGWISE/SampleData/TD50')
```

DataPreparation_Biosemi.m

While **Mon@** folder is no longer *asked for,* the intended folder structure is still to **KEEP Mon@** folder inside a **TD@@** folder.

```
%% Initialize directories
addpath(genpath('./Dependencies/'));
```

PatDir

3x1 struct with 6 fields

Fields	name	folder	date	bytes	isdir
1	'.'	'/Users/j...	'21-Mar-...	0	1
2	'..'	'/Users/j...	'21-Mar-...	0	1
3	'Mon5'	'/Users/j...	'21-Mar-...	0	1

```
% List all files and folders in the directory
PatDir = dir(fullfile(DataDir, Pat)); % Using fullf
% Remove "." and ".." entries and keep only folders
PatDir = PatDir([PatDir.isdir]); % Keep only direct
```

```
>> PatDir.isdir

ans =

  logical

    1


ans =

  logical

    1


ans =

  logical

    1
```

You saw from the previous slide that PatDir, a struct, has three fields. **PatDir.isdir** is a command checking if each field is an entry about a **directory**. If a field is an entry about a directory, it returns **1 (true)**. Here you see that three **ans**(wers) are all 1's, meaning that all three fields of PatDir are about directories.

This is one example of logical indexing; if you don't understand, just think that this code makes PatDir to contain only entries about directories.

DataPreparation_Biosemi.m

While **Mon@** folder is no longer *asked for,* the intended folder structure is still to **KEEP Mon@** folder inside a **TD@@** folder.

```
%% Initialize directories
addpath(genpath('./Dependencies/'));

% Modify to the data directory on your computer
DataDir = '/Users/joh/Documents/Personal/Mentoring/NR/EE                    ';
% Modify to the directory for the trial information on y
trialInfo = readtable('/Users/joh/Documents/Personal/Mer                    E/

% modify the participant and visit session for analysis
Pat = 'TD08';

% List all files and folders in the directory
PatDir = dir(fullfile(DataDir, Pat)); % Using fullfile f                    nc
% Remove "." and ".." entries and keep only folders
PatDir = PatDir([PatDir.isdir]); % Keep only directories
PatDir = PatDir(~ismember({PatDir.name}, {'.', '..'}));                     "."
```

```
>> PatDir.name

ans =

    '.'

ans =

    '..'

ans =

    'Mon5'
```

So this is iteratively checking if each element of PatDir.name is in {‘.’, ‘..’}.
The first (‘.’) and the second (‘..’) are in {‘.’, ‘..’} -> returns **1 (true)**
The third (‘Mon5’) is **not** contained in {‘.’, ‘..’}. -> returns **0 (false)**

ismember True for set member.
LIA = **ismember**(A,B) for arrays A and B returns an array of the same size as A containing true where the elements of A are in B and false otherwise.

DataPreparation_Biosemi.m

While **Mon@** folder is no longer *asked for,* the intended folder structure is still to **KEEP Mon@** folder inside a **TD@@** folder.

```
%% Initialize directories
addpath(genpath('./Dependencies/'));

% Modify to the data directory on your comput
DataDir = '/Users/joh/Documents/Personal/Ment
% Modify to the directory for the trial infor
trialInfo = readtable('/Users/joh/Documents/

% modify the participant and visit session fo
Pat = 'TD08';

% List all files and folders in the directory
PatDir = dir(fullfile(DataDir, Pat)); % Using
% Remove "." and ".." entries and keep only f
PatDir = PatDir([PatDir.isdir]); % Keep only
PatDir = PatDir(~ismember({PatDir.name}, {'.', '..'})); % Remove "." and ".."
```

```
>> PatDir.name

ans =

    '.'

ans =

    '..'

ans =

    'Mon5'
```

```
>> ismember({PatDir.name}, {'.', '..'})

ans =

  1×3 logical array

   1   1   0
```

Is '.' a member of {'.', '..'}? → true

Is '..' a member of {'.', '..'}? → true

Is 'Mon5' a member of {'.', '..'}? → false

~ means **not**.
not true (~ 1) is **false (0)**
not false (~ 0) is **true (1)**
So ~[1 1 0] = [0 0 1] = [false false true]

DataPreparation_Biosemi.m

While **Mon@** folder is no longer *asked for,* the intended folder structure is still to **KEEP Mon@** folder inside a **TD@@** folder.

```
%% Initialize directories
addpath(genpath('./Dependencies/'));

% Modify to the data directory on your com
DataDir = '/Users/joh/Documents/Personal/M
% Modify to the directory for the trial in
trialInfo = readtable('/Users/joh/Document

% modify the participant and visit session
Pat = 'TD08';
```

saved

```
% List all files and folders in the direct
PatDir = dir(fullfile(DataDir, Pat)); % Using fullfile for safer path handling
% Remove "." and ".." entries and keep only folders
PatDir = PatDir([PatDir.isdir]); % Keep only directorie
PatDir = PatDir(~ismember({PatDir.name}, {'.', '..'}));
```

PatDir

3x1 struct with 6 fields

Fields	name	folder	date	bytes	isdir	datenum
1	'.'	'/Users/j...	'21-Mar-...	0	1	7.3970e+05
2	'..'	'/Users/j...	'21-Mar-...	0	1	7.3970e+05
3	'Mon5'	'/Users/j...	'21-Mar-...	0	1	7.3970e+05

This is PatDir([false false true])
This is equal to selecting the **THIRD** element of PatDir.

DataPreparation_Biosemi.m

While **Mon@** folder is no longer *asked for,* the intended folder structure is still to **KEEP Mon@** folder inside a **TD@@** folder.

```
%% Initialize directories
addpath(genpath('./Dependencies/'));

% Modify to the data directory on your com
DataDir = '/Users/joh/Documents/Personal/M
% Modify to the directory for the trial in
trialInfo = readtable('/Users/joh/Document

% modify the participant and visit session
Pat = 'TD08';

% List all files and folders in the direct
PatDir = dir(fullfile(DataDir, Pat)); % Using fullfile for safer path handling
% Remove "." and ".." entries and keep only folders
PatDir = PatDir([PatDir.isdir]); % Keep only directories
PatDir = PatDir(~ismember({PatDir.name}, {'.', '..'})); % Remove "." and ".."
```

PatDir

3x1 struct with 6 fields

Fields	name	folder	date	bytes	isdir	datenum
1	'.'	'/Users/j...	'21-Mar-...	0	1	7.3970e+05
2	'..'	'/Users/j...	'21-Mar-...	0	1	7.3970e+05
3	'Mon5'	'/Users/j...	'21-Mar-...	0	1	7.3970e+05

PatDir

1x1 struct with 6 fields

Field	Value
name	'Mon5'
folder	'/Users/joh/Documents/Personal/Mentoring/NR/EEGWISE/SampleData/TD50'
date	'21-Mar-2025 17:40:30'
bytes	0
isdir	1
datenum	7.3970e+05

DataPreparation_Biosemi.m

While **Mon@** folder is no longer *asked for,* the intended folder structure is still to **KEEP Mon@** folder inside a **TD@@** folder.

i will increase from 1 to **size(PatDir, 1)**. In our example of TD50, **i** will increase from 1 to 1. **strcat** concatenates texts.

```
if isempty(PatDir)
    print('No monthly folders found for the patient. Please check the patient name
else
    for i = 1:size(PatDir,1) % loop through each Monthly folder for the participant
        SessionDir = dir(strcat(PatDir(i).folder,'/',PatDir(i).name,'/*.txt'));

        if isempty(SessionDir)
            print('No files found. Please check the patient name and file directory
            continue;
```

```
onDir
str2double(reg
```

PatDir

1x1 struct with 6 fields

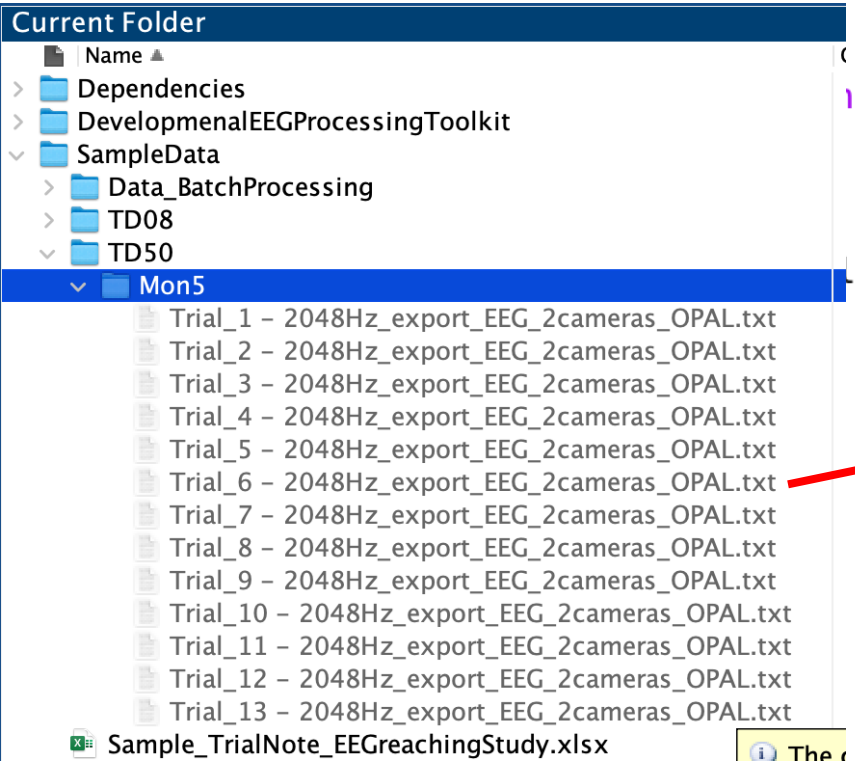
Field	Value
name	'Mon5'
folder	'/Users/joh/Documents/Personal/Mentoring/NR/EEGWISE/SampleData/TD50'
date	'21-Mar-2025 17:40:30'
bytes	0
isdir	1
datenum	7.3970e+05

The output of this command is: "/Users/joh/Documents/Personal/Mentoring/NR/EEGWISE/SampleData/TD50/Mon5/*.txt"

DataPreparation_Biosemi.m

While **Mon@** folder is no longer *asked for,* the intended folder structure is still to **KEEP Mon@** folder inside a **TD@@** folder.

```
if isempty(PatDir)
    print('No monthly folders found for the patient. Please check the patient name
else
    for i = 1:size(PatDir,1) % loop through each Monthly folder for the participant
        SessionDir = dir(strcat(PatDir(i).folder,'/',PatDir(i).name,'/*.txt'));
```



SessionDir

13x1 struct with 6 fields

Fields	name	folder	date	bytes	isdir	datenum
1	'Trial_1 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	46078496	0	7.3970e+05
2	'Trial_10 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	22883954	0	7.3970e+05
3	'Trial_11 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	30448482	0	7.3970e+05
4	'Trial_12 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	29058839	0	7.3970e+05
5	'Trial_13 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	24031938	0	7.3970e+05
6	'Trial_2 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	46090720	0	7.3970e+05
7	'Trial_3 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	46091484	0	7.3970e+05
8	'Trial_4 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	46080597	0	7.3970e+05
9	'Trial_5 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	46086327	0	7.3970e+05
10	'Trial_6 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	46086518	0	7.3970e+05
11	'Trial_7 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	46087664	0	7.3970e+05
12	'Trial_8 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	46083653	0	7.3970e+05
13	'Trial_9 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	16351679	0	7.3970e+05

DataPreparation_Biosemi.m

While **Mon@** folder is no longer *asked for,* the intended folder structure is still to **KEEP Mon@** folder inside a **TD@@** folder.

```
if isempty(PatDir)
    print('No monthly folders found for the patient. Please check the patient name
else
    for i = 1:size(PatDir,1) % loop through each Monthly folder for the participant
        SessionDir = dir(strcat(PatDir(i).folder,'/',PatDir(i).name,'/*.txt'));

        if isempty(SessionDir)
            print('No files found. Please check the patient name and file directory
            continue;
        else
            % get trial indices in SessionDir
            Sess_trialIdx = cellfun(@(x) str2double(regexp(x, '\d+', 'match', 'once
```

DataPreparation_Biosemi.m

While **Mon@** folder is no longer *asked for,* the intended folder structure is still to **KEEP Mon@** folder inside a **TD@@** folder.

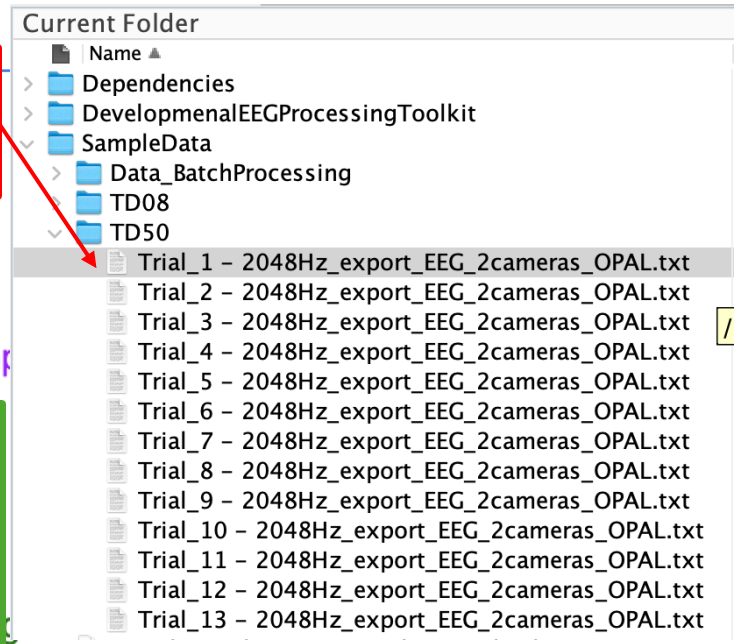
If you don't have a **Mon@** folder...

```
% Modify to the data directory on your computer
DataDir = '/Users/joh/Documents/Personal/Mentoring/NR/EEGWISE/SampleData';
% Modify to the directory for the trial information on your computer
trialInfo = readtable('/Users/joh/Documents/Personal/Mentoring/NR/EEGWISE/Samp

% modif
Pat =

% list
PatDir
% Remov
PatDir
PatDir
```

PatDir

16x1 struct with 6 fields

Fields	name	folder	date	bytes	isdir	datenum
1	'.'	'/Users/j...	'21-Mar-...	0	1	7.3970e+05
2	'..'	'/Users/j...	'21-Mar-...	0	1	7.3970e+05
3	'.DS_Store'	'/Users/j...	'21-Mar-...	6148	0	7.3970e+05
4	'Trial_1 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	46078496	0	7.3970e+05
5	'Trial_10 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	22883954	0	7.3970e+05
6	'Trial_11 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	30448482	0	7.3970e+05
7	'Trial_12 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	29058839	0	7.3970e+05
8	'Trial_13 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	24031938	0	7.3970e+05
9	'Trial_2 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	46090720	0	7.3970e+05
10	'Trial_3 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	46091484	0	7.3970e+05
11	'Trial_4 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	46080597	0	7.3970e+05
12	'Trial_5 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	46086327	0	7.3970e+05
13	'Trial_6 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	46086518	0	7.3970e+05
14	'Trial_7 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	46087664	0	7.3970e+05
15	'Trial_8 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	46083653	0	7.3970e+05
16	'Trial_9 - 2048Hz_export_EEG_2cameras_OPAL.txt'	'/Users/j...	'22-Mar-...	16351679	0	7.3970e+05



DataPreparation_Biosemi.m

While **Mon@** folder is no longer *asked for,* the intended folder structure is still to **KEEP Mon@** folder inside a **TD@@** folder.

If you don't have a **Mon@** folder...

```
% Modify to the data directory on your computer
DataDir = '/Users/joh/Documents/Personal/Mentoring/NR/EEGWISE/SampleData';
% Modify to the directory for the trial information on your computer
trialInfo = readtable('/Users/joh/Do

% modify the participant and visit s
Pat = 'TD08';

% List all files and folders in the
PatDir = dir(fullfile(DataDir, Pat))
% Remove "." and ".." entries and ke
PatDir = PatDir([PatDir.isdir]); % Keep only directories
```

```
>> logicalindex = [PatDir.isdir];
>> logicalindex

logicalindex =

  1×16 logical array

   1   1   0   0   0   0   0   0   0   0   0   0   0   0   0   0
```

PatDir

2x1 struct with 6 fields

Fields	name	folder	date	bytes	isdir	datenum
1	'.'	'/Users/j...	'21-Mar-...	0	1	7.3970e+05
2	'..'	'/Users/j...	'21-Mar-...	0	1	7.3970e+05

DataPreparation_Biosemi.m

While **Mon@** folder is no longer *asked for,* the intended folder structure is still to **KEEP Mon@** folder inside a **TD@@** folder.

If you don't have a **Mon@** folder...

```
% Modify to the data directory on your computer
DataDir = '/Users/joh/Documents/Personal/Mentoring/NR/EEGWISE/SampleData';
% Modify to the directory fo
trialInfo = readtable('/User

% modify the participant and
Pat = 'TD08';

% List all files and folders
PatDir = dir(fullfile(DataDir, Pat)); % Using fullfile for safer path handling
% Remove "." and ".." entries and keep only folders
PatDir = PatDir([PatDir.isdir]); % Keep only directories
PatDir = PatDir(~ismember({PatDir.name}, {'.', '..'})); % Remove "." and ".."
```

PatDir

2x1 struct with 6 fields

Fields	name	folder	date	bytes	isdir	datenum
1	'.'	'/Users/j...	'21-Mar-...	0	1	7.3970e+05
2	'..'	'/Users/j...	'21-Mar-...	0	1	7.3970e+05

PatDir

0x1 struct with 6 fields

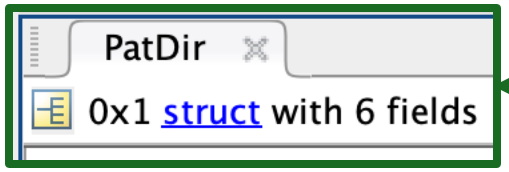
```
>> ~ismember({PatDir.name}, {'.', '..'})

ans =

  1×2 logical array

   0   0
```

```
>> ismember({PatDir.name}, {'.', '..'})

ans =

  1×2 logical array

   1   1
```

DataPreparation_Biosemi.m

While **Mon@** folder is no longer *asked for,* the intended folder structure is still to **KEEP Mon@** folder inside a **TD@@** folder.

If you don't have a **Mon@** folder…




```
>> isempty(PatDir)

ans =

  logical

   1
```

1 = true

```
if isempty(PatDir)
    print('No monthly                    the patient. Please check the patient name
else
for i = 1:size(PatDir,1) % loop through each Monthly folder for the participant
```

```
Error using validateHandleToPrint
No figure to print.

Error in validate (line 17)
pj = validateHandleToPrint(pj);

Error in print (line 67)
pj = validate( pj );

Error in DataPreparation_Biosemi (line 25)
    print('No monthly folders found for the patient. Please check the patient name and file direc
```

If this condition is true, then anything below 'else' does not run which is NOT what you want.

Does not run!

EEGWISE runs smoothly as well

Where *_Baseline.set and *_reach.set are stored