



Fieldtrip Programming Principles

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FieldTrip toolbox

- free, open-source Matlab toolbox for EEG and MEG data analysis
- developed at the [Donders Institute for Brain, Cognition and Behaviour](#), the Netherlands
- extensive [tutorial documentation](#), [reference documentation](#), and active community over an [e-mail discussion list](#)

<http://www.fieldtriptoolbox.org/>

[Oostenveld et al. \(2011\) *Computational Intelligence and Neuroscience*](#)



Downloading FieldTrip

- download Fieldtrip toolbox: <http://www.fieldtriptoolbox.org/download>
- add FieldTrip to your matlab path:

```
restoredefaultpath
```

```
addpath your_path, e.g. /home/common/matlab/fieldtrip
```

```
ft_defaults
```

(this is also what each of your FieldTrip scripts should start with)

[http://www.fieldtriptoolbox.org/faq/should i add fieldtrip with all subdirectories to my matlab path](http://www.fieldtriptoolbox.org/faq/should_i_add_fieldtrip_with_all_subdirectories_to_my_matlab_path)



FieldTrip functions

- FieldTrip functions are called `ft_(functionname)`,
e.g. `ft_preprocessing`, `ft_timelockanalysis`
- each function has a number of settings
- functions and their settings are documented here:
<http://www.fieldtriptoolbox.org/reference>
you can also access documentation in matlab with `help ft_(functionname)`



Using Matlab's help function

```
help ft_preprocessing
```

FT_PREPROCESSING reads MEG and/or EEG data according to user-specified trials and applies several user-specified preprocessing steps to the signals.

Use as

```
[data] = ft_preprocessing(cfg)
```

or

```
[data] = ft_preprocessing(cfg, data)
```



Configuration structures

- you can pass settings to FieldTrip functions with **configuration structures (cfg)**
- each FieldTrip function has its own set of cfg options that it will accept
- **start with an empty cfg for each function**

```
cfg = [];
```

- options are passed as **fields** of the cfg

```
cfg.trials = 'all';
```



Input and output of functions

- configuration structures are passed to functions in parentheses
- usually you pass both a **cfg** and an **input data structure** to a function
- you also get an **output data structure**

```
cfg = [];  
cfg.datafile = 'mydata.cnt';  
data_raw = ft_preprocessing(cfg);
```

```
cfg = [];  
data_preprocessed =  
ft_preprocessing(cfg, data_raw);
```