Overview

The create_mat_file function generates .mat files (for MATLAB or MNG Toolbox compatibility) containing:

- Channel data
- Metadata (channels, file, record)
- Optional comments
- Version information

It ensures that all data is properly shaped, sorted, and saved — **ready for analysis**.

Function Signature

create_mat_file(filename, *args)

Argument	Type	Description
filename	str	Name of the output .mat file (with .mat extension).
*args	various	List of name-value pairs for channels and comments (see below).

Accepted Name-Value Pairs

You must pass data in the form of **name**, **value1**, **value2**, etc.

1. 'channel'

Adds a data channel.

Parameter	Description
data	Array of data points (1D array or list).
ts_fs	Either: [sampling_frequency, start_time] or an array of explicit timestamps (same length as data).
name	Name of the channel (string).
unit	Measurement unit of the channel (string).

Example:

python

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'channel', data_array, [sampling_freq, start_time], 'EMG', 'mV'

You can repeat 'channel' multiple times for multiple channels.

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2. 'comments'

Adds comments into the recording timeline.

Parameter	Description
comments	List of comment strings.
timestamps	List of corresponding timestamps in seconds.

Example:

python

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'comments', ['Start', 'Midpoint', 'End'], [0.0, 5.0, 10.0]

- [5.000 s] Middle point
- [9.900 s] End recording

Requirements

- Python 3.x
- numpy
- scipy (for savemat function)

You can install missing packages via:

pip install numpy scipy

Notes

- You **must** pass name-value pairs correctly ('channel', values..., 'comments', values...).
- If no comments are passed, the function still saves the file without errors.
- The file is always overwritten if a file with the same name already exists.
