

# cleanLine

*CleanLine data version 2.1 is part of eeglab 2025*

EEGpal use the second version of the implementation of the script with the command **cleanLineNoise**. It removes sharp spectral peaks from signal using Slepian filters.

It removes noise from the AC current (power line frequency + harmonique, e.g. 50, 100, 150, 200 in Europe and 60,120,180,240 in US).

## Input:

EEG : continuous EEG recording to clean up (as EEGLAB dataset structure).

### Line noise frequencies to remove:

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Input Range : Unrestricted

Default value: 60

Input Data Type: real number (double)

### p-value for detection of significant sinusoid :

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Input Range : [0 1]

Default value: 0.01

Input Data Type: real number (double)

### Bandwidth (Hz):

This is the width of a spectral peak for a sinusoid at fixed frequency. As such, this defines the multi-taper frequency resolution.

Input Range : Unrestricted

Default value: 2

Input Data Type: real number (double)

**Taper bandwidth:**

tapers Precomputed tapers from dpss (default 2 Hz)

**Sliding window length (sec):**

Default is the epoch length.

Input Range : [0 4]

Default value: 4

Input Data Type: real number (double)

**Sliding window step size (sec):**

This determines the amount of overlap between sliding windows.

Default is window length : 1.

Input Range : [0 4]

Default value: 4

Input Data Type: real number (double)

**Window overlap smoothing factor :**

A value of 1 means (nearly) linear smoothing between adjacent sliding windows. A value of Inf means no smoothing. Intermediate values produce sigmoidal smoothing between adjacent windows

Input Range : [1 Inf]

Default value: 100

Input Data Type: real number (double)

**FFT padding factor**

Signal will be zero-padded to the desired power of two greater than the sliding window length. The formula is  $N_{FFT} = 2^{\text{nextpow2}(\text{SlidingWinLen} * (\text{PadFactor} + 1))}$ . e.g. For SlidingWinLen = 500, if PadFactor = -1, we do not pad; if PadFactor = 0, we pad the FFT to 512 points, if PadFactor=1, we pad to 1024 points etc.

Input Range : [-1 Inf]

Default value: 2

Input Data Type: real number (double)