salford_mic_arc Class Diagram

Red: functionality not implemented

SingleFileTimeSeries filename : str mic_channel_names : list other_channel_names : list T : float fs : int fs2 : int t : (T*fs,) array t2 : (T*fs2,) *array* N_ch : *int* mic_data : (N_ch, T*fs) array other_channels : (N_ch, T*fs) array or (N_ch, T*fs2) array _read_mic_chs() read other chs() calc channel mean() filter_data() estimate_peak_freq() calc_PSDs() export wavs()

```
filenames : list of str
N_files : int

mic_channel_names : list
other_channel_names : list

T : float
fs : int
fs2 : int
t : (T*fs,) array
t2 : (T*fs2,) array

N_ch : int
files : (N_files,) list of 'SingleFileTimeSeries'

filter_data()
calc_channel_mean()
```

SingleFilePSD filename : str N_ch : *int* Noverlap : int window : *str* psd : (N_ch, Ndft//2+1) array df : float fs : *int* Ndft : *int* freq : (Ndft//2+1,) array psd_broadband : (N_ch, Ndft//2+1) array peak_indices : (N_ch, N_peaks) array peak_lims : (N_ch, N_peaks, 2) array overall_SPL : (N_ch,) array broadband_SPL : (N_ch,) array peaks_SPL : (N_ch, N_peaks) array tonal_SPL : (N_ch,) array calc broadband PSD() calc_overall_SPL() calc_broadband_SPL() find_peaks() _find_peak_lims() calc_tonal_SPL() _calc_peaks_SPL()

```
MultiFilePSD
filenames : list
N_files : int
Ndft : int
Noverlap : int
window : str
psd: (N_files,) list of 'SingleFilePSD'
N_ch : int
df : float
freq : (Ndft//2+1,) array
broadband_SPL : (N_files, N_ch) array
overall_SPL : (N_files, N_ch) array
peak_indices : (N_files, N_ch, N_peaks) array
peak_lims : (N_files, N_ch, N_peaks, 2) array
tonal_SPL : (N_azim, N_ch,)- array
calc_PSDs()
calc_overall_SPL()
calc_broadband_SPL()
find_peaks()
calc_peaks_SPL()
calc_tonal_SPL()
SPL_to_polar()
```

References on UML / Class Diagrams:

https://www.visual-paradigm.com/g
uide/uml-unified-modelinglanguage/uml-class-diagramtutorial/

https://www.tutorialspoint.com/
uml/uml_class_diagram.htm

TO DO:

- class for rotating machineryN_blades, f_shaft, BPFrecirculation_test
- class for reading multiple

- enable filter_data method
(iterate over multiple
DSRawTimeSeries?)

class_name

attribute1 : attr1_type
attribute2 : attr2_type

method1()
method2()

root namespace

P_REF : float
DEFAULT_NDFT : int
DEFAULT_NOVERLAP : int
DEFAULT_WINDOW : str

_calc_spectral_centroid()
calc_ac_power()

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Author	Fabio Casagrande Hirono
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