The hrv function in the BIL\_HRV.py file calculates and returns a dictionary time and frequency domain calculations for PPG data. To utilize in analysis using python, hrv function can be imported as follows:

>>> import BIL\_HRV as bh

bh is an alias for the python file, and any alias can be used. Ensure the BIL\_HRV.py file is in the same location as the file you are directly calling it from. To use the hrv function:

>>> hv = bh.hrv(‘file’)

Tip: help(bh.hrv) in python works.

hv is now a dictionary containing the time and frequency domain. The keys, and the units to the calculated metrics are:

*Key : Unit*

*'MeanRR' : (ms)   
 'MeanHR' : (bpm)  
 'MinHR' : (bpm)  
 'MaxHR' : (bpm)  
 'SDNN' : (ms)  
 'RMSSD' : (ms)  
 'NNx' : (beats)  
 'pNNx' : (%)  
 'PowerVLF' : (ms2)  
 'PowerLF' : (ms2)  
 'PowerHF' : (ms2)  
 'PowerTotal' : (ms2)   
 'LF/HF' :   
 'PeakVLF' : (Hz)  
 'PeakLF' : (Hz)  
 'PeakHF' : (Hz)  
 'FractionLF' : (nu)  
 'FractionHF' : (nu)*

The hrv function also takes optional arguments that should be used carefully. They are:

*complete\_sequence - takes a true or false argument for whether you require the longest sequence of non missing data  
threshold - is used to set the permissible difference between IBI  
x - is the time in milliseconds for calculating pNN and NN  
correction - is to take care of outliers, should be used carefully  
fs - for sample rate interpolation in frequency domain*