**start.py**

* **Description**
  + The primary user interface which allows the user to select the data source for radio capture
* **Functions**
  + **None**

**analysis.py**

* **Description**
  + Performs a predefined set of analysis on the input radio data. Produces graphs for original data, hilbert transformed data, the derivative of hilbert transformed data, and peak detection
* **Functions**
* **analysis(t, data\_original, samplerate)**
  + **Description**
    - Takes input data and produces graphs of parameters of interest, as well as producing the final image from radio data
  + **Usage**
    - **t** - Time vector (x-axis for graphing)
    - **data\_original** - Array of radio data as int16 values for processing
    - **samplerate** - The samplerate of data\_original
  + **Return**
    - **None**
* **hilbert(data)**
  + **Description**
    - Performs Hilbert transform for demodulation
  + **Usage**
    - **data** - int16 array to perform Hilbert transform on
  + **Return**
    - **amplitude\_envelope** - int16 array of Hilbert transformed version of data array
  + **References**
    - Portions of hilbert() derived from the scipy reference documentation
      * https://docs.scipy.org/doc/scipy/reference/generated/scipy.signal.hilbert.html

**read\_raw.py**

* **Description**
  + Reads a raw data file produced by the receive\_udp() function captured from GQRX
* **Functions**
  + **read\_raw(filename)**
    - **Description**
      * Reads a raw data file produced by the receive\_udp() function captured from GQRX
    - **Usage**
      * **filename** - Input filename to read radio data from
    - **Return**
      * **t** - Time vector array
      * **data\_16bit** - Array of int16 containing radio data
      * **48000** - Hard programmed samplerate of 48 KHz

**read\_wav.py**

* **Functions**
  + Reads a wav data file produced by the receive\_udp() function captured from GQRX
* **Description**
  + **read\_wav(filename)**
    - **Description**
      * Reads a wav data file produced by the receive\_udp() function captured from GQRX
    - **Usage**
      * **filename** - Input filename to read radio data from
    - **Return**
      * **t** - Time vector array
      * **data\_16bit** - Array of int16 containing radio data
      * **samplerate** - Sample rate as determined from the wav file

**realtime.py**

* **Description**
  + Performs real-time graphing of radio data read from the currently running data file (i.e. radio\_capture0.dat) as read from settings.csv
* **Functions**
  + **hilbert(data)**
    - **Description**
      * Performs Hilbert transform for demodulation
    - **Usage**
      * **data** - int16 array to perform Hilbert transform on
    - **Return**
      * **amplitude\_envelope** - int16 array of Hilbert transformed version of data array
    - **References**
      * Portions of hilbert() derived from the scipy reference documentation
    - https://docs.scipy.org/doc/scipy/reference/generated/scipy.signal.hilbert.html

**resample.py**

* **Description**
  + Contains functions necessary for resampling radio data
* **Functions**
  + **resample(smpl\_rate, desired\_smpl, data)**
    - **Description**
      * Performs resampling of input data
    - **Usage**
      * **smpl\_rate** - The input sample rate of **data**
      * **desired\_smpl** - The desired output sample rate
      * **data** - int16 array of resampled data
    - **Return**
      * **amplitude\_envelope** - int16 array of Hilbert transformed version of data array