Configuration Manual

MSc Research Project
Data Analytics

Jhanavi Govinde Gowda
Student ID: X18128998

School of Computing

National College of Ireland

Supervisor: Dr. Cristina Muntean

Student Name:	Jhanavi Govinde Gowda		
Student ID:	X18128998		
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Configuration Manual

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Student ID: X18128998

1   MATLAB Software Installation

The signal pre-processing and peak detection is done in MATLAB R2019b (9.7.0.1190202) using wavelet analysis tool. The MATLAB tool is installed from the official website and selected signal processing package as shown in Figure 1.
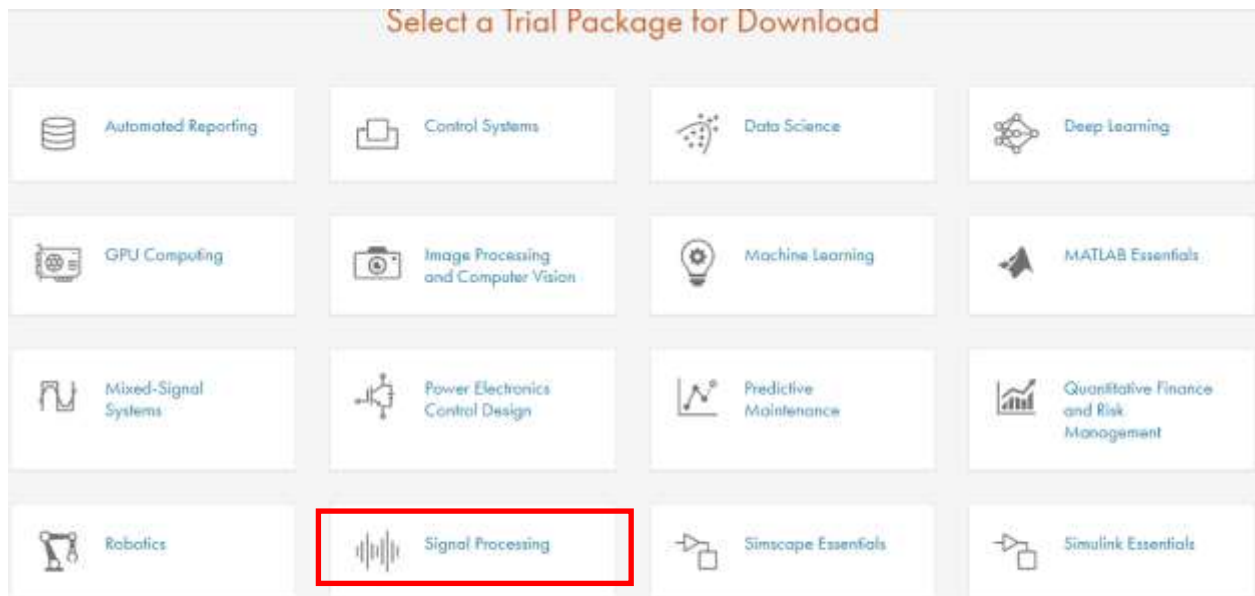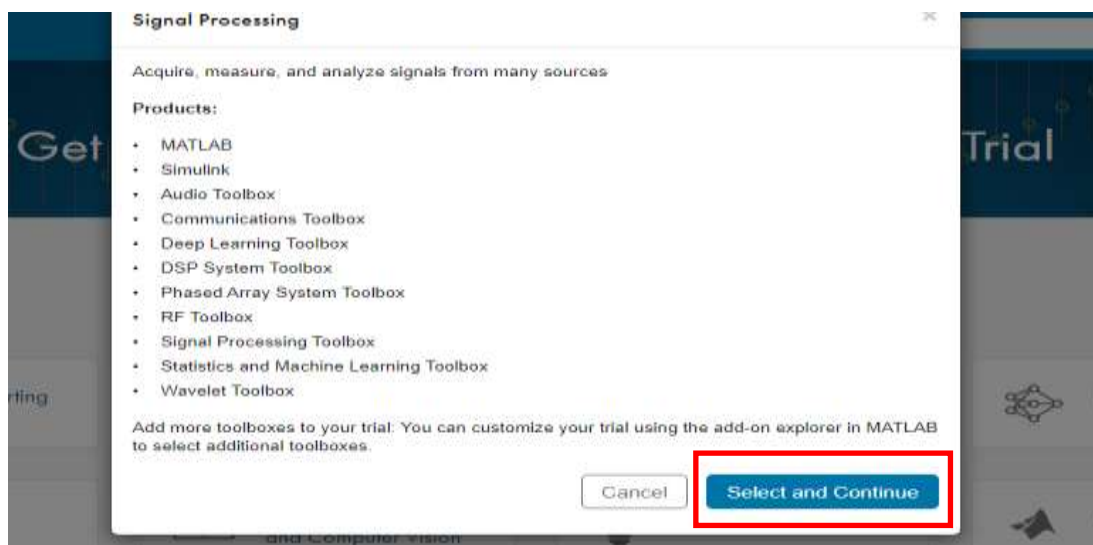

Figure 1: MATLAB software

Figure 2: Installation of Signal Processing

The MATLAB software is downloaded for windows and it is installed for Figure 3.
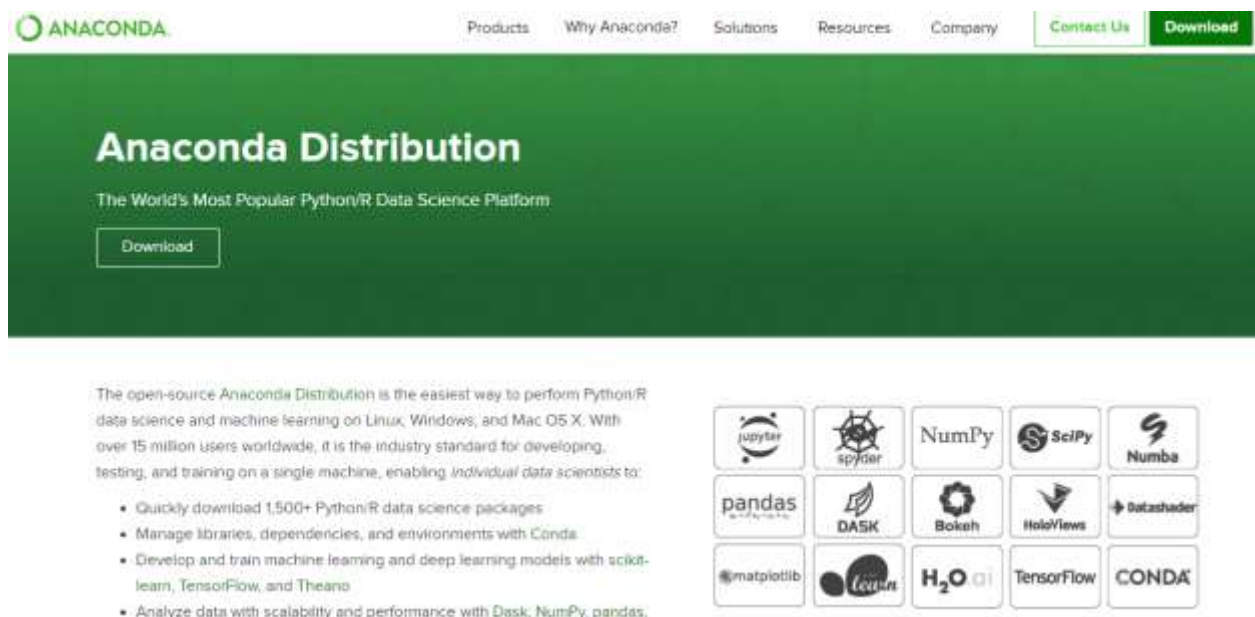
Figure 3: MATLAB software for windows

2   Installation of Anaconda Software

The implementation of the model is done using python with version 3. In order to use the software Anaconda needs to be installed. It is downloaded using the link [1] for windows as shown in Figure 4.

Figure 4: Anaconda Installation

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[1] https://www.anaconda.com/

Python programming is done in Jupiter version 6.0.0 which is web based and provides interactive environment as shown in Figure 5.
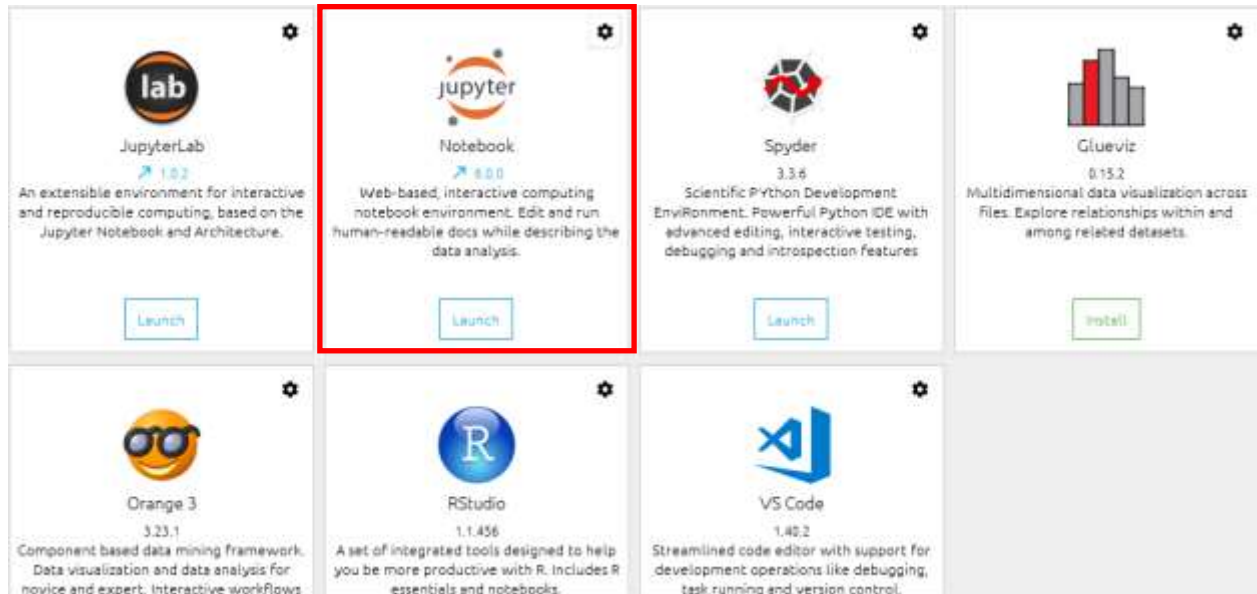

Figure 5: Jupiter notebook launched

3 Data Extraction

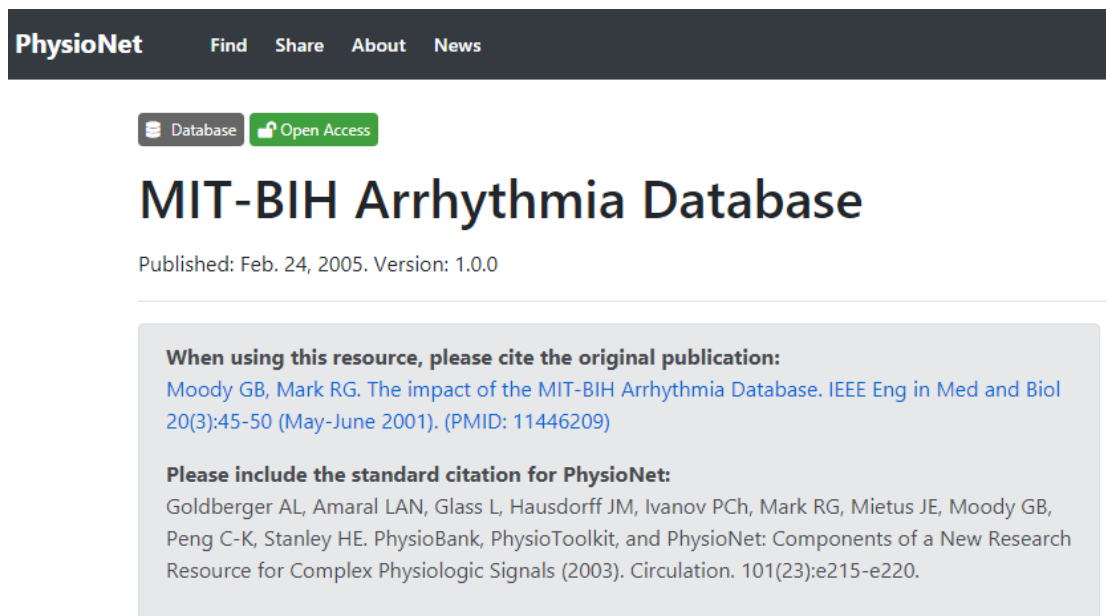The heart beat data is taken from MIT-BIH dataset which is publicly available in[2]

Figure 6: ECG data extraction

The data is taken to the MATLAB and analyzed using wavelet Analyzer tool.
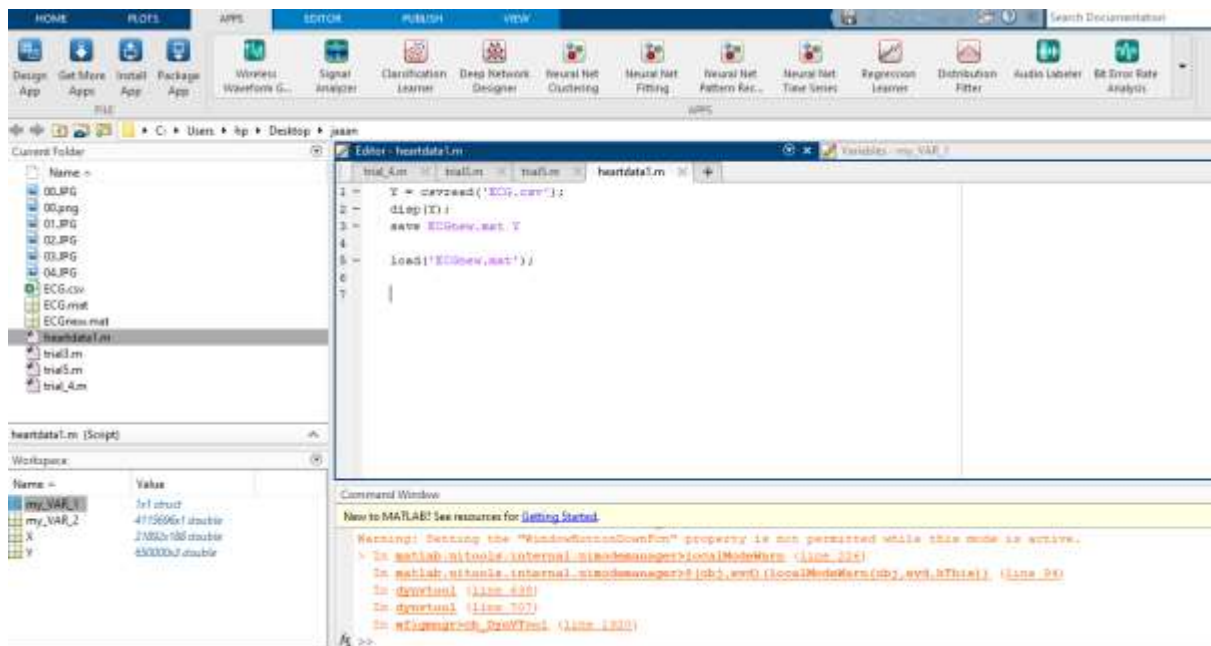

Figure 7: Data inserted into MATLAB

Wavelet Analyzer is selected with wavelet packet 1D as shown in the Figure 8 and 9.
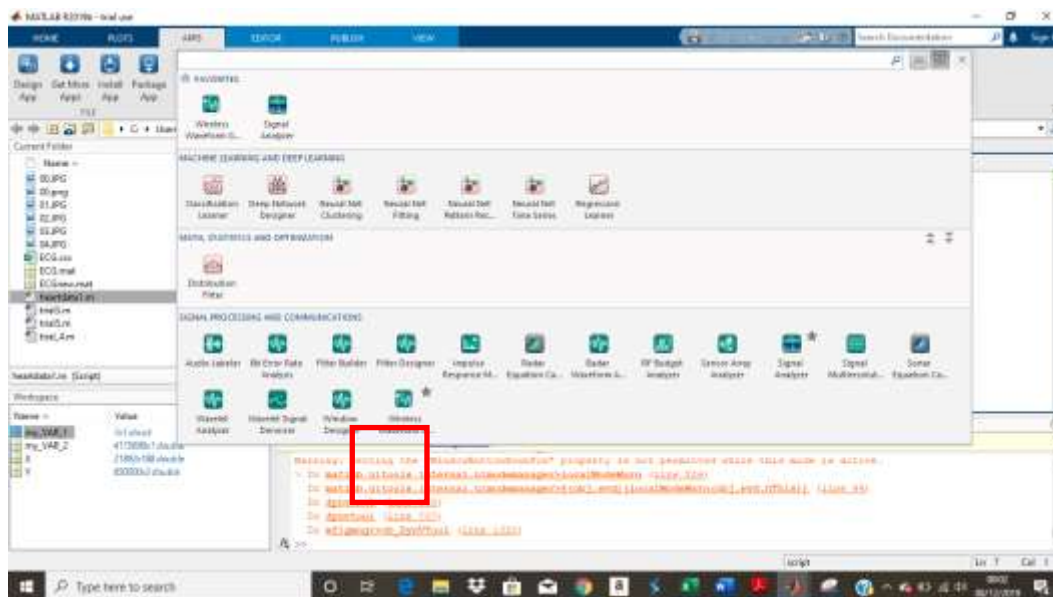
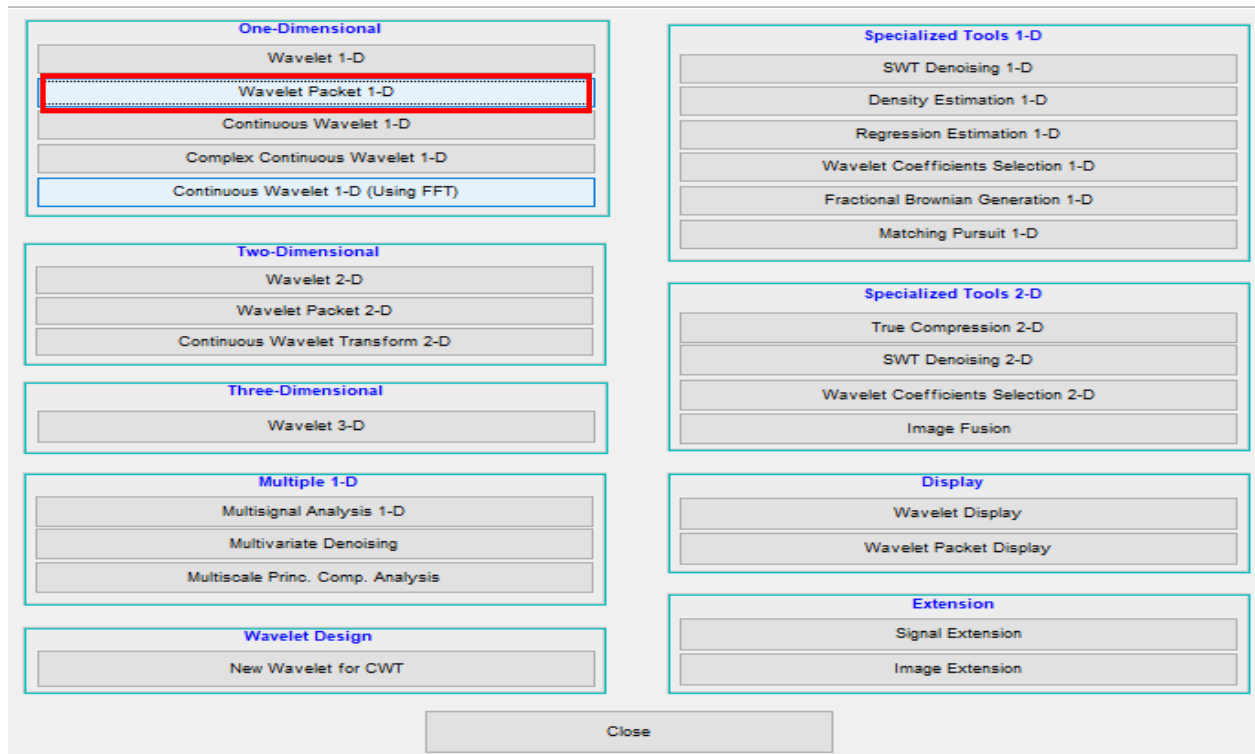

Figure 8: Wavelet Analyzer is selected

Figure 9: Wavelet Packet 1-D

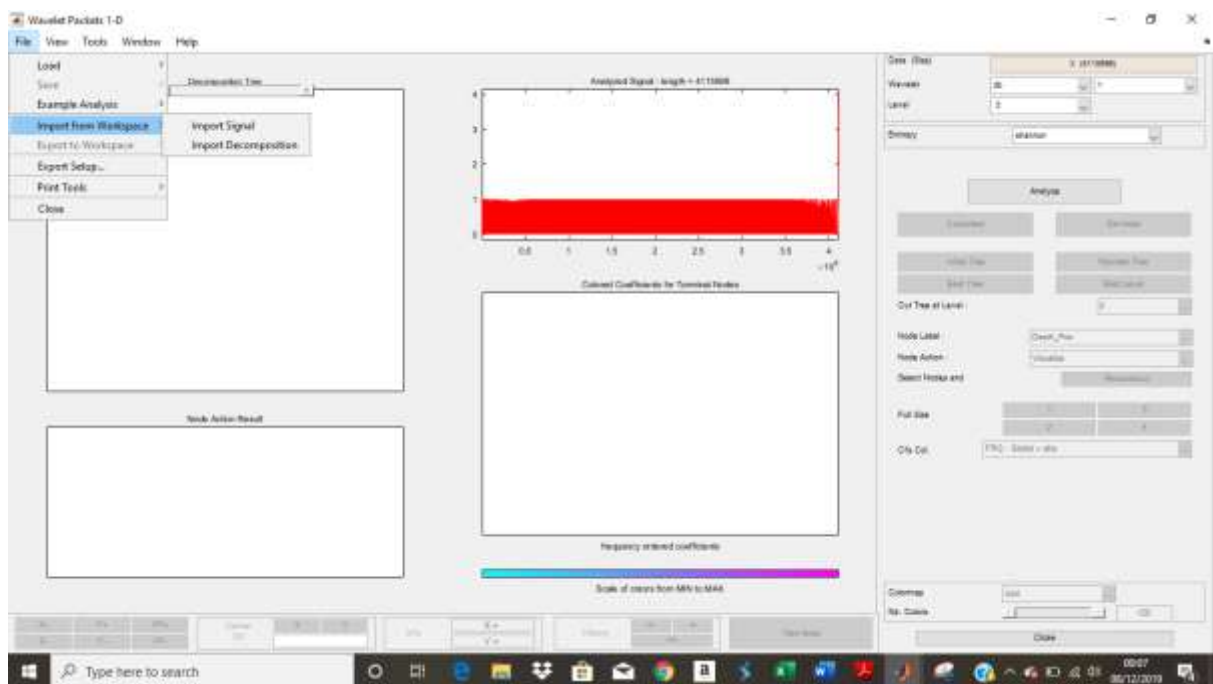The signal is imported into the workplace by selecting the options as shown in the Figure 9.

Figure 10: Data imported to workplace

The signal is De – noised in the form of tree structure as shown in the Figure 10
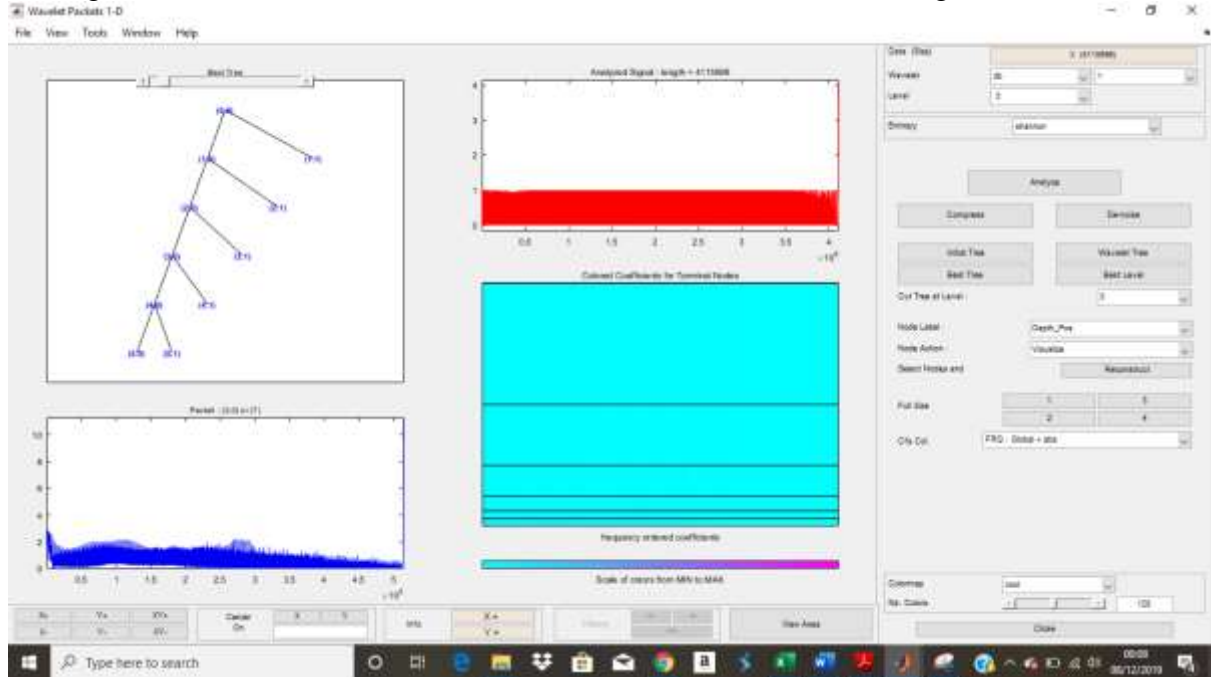

Figure 11: Tree structure of the decomposed signal

4   Library Installation

Keras Tensor flow library is installed using the following command. Open Jupiter notebook – file – new – python 3 and enter the following command

conda install -c conda-forge keras tensorflow

The library takes few minutes to install and produces the following output as shown in the Figure 12.

```
Collecting package metadata (current_repodata.json): ...working... done
Solving environment: ...working... done

# All requested packages already installed.


C:\Users\Administrator>set "KERAS_BACKEND="

C:\Users\Administrator>python C:\ProgramData\Anaconda3\etc\keras\load_config.py  1>temp.txt

C:\Users\Administrator>set /p KERAS_BACKEND= 0<temp.txt

C:\Users\Administrator>del temp.txt

C:\Users\Administrator>python -c "import keras"  1>nul 2>&1

C:\Users\Administrator>if errorlevel 1 (
ver  1>nul
 set "KERAS_BACKEND=theano"
 python -c "import keras"  1>nul 2>&1
)

C:\Users\Administrator>SET DISTUTILS_USE_SDK=1

C:\Users\Administrator>SET MSSdk=1

C:\Users\Administrator>SET platform=

C:\Users\Administrator>IF /I [AMD64] == [amd64] set "platform=true"
C:\Users\Administrator>IF /I [] == [amd64] set "platform=true"

C:\Users\Administrator>if defined platform (set "VSREGKEY=HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Microsoft\VisualStu
dio\14.0" )  ELSE (set "VSREGKEY=HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\VisualStudio\14.0" )

C:\Users\Administrator>for /F "skip=2 tokens=2,*" %A in ('reg query "HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Microsof
t\VisualStudio\14.0" /v InstallDir') do SET "VSINSTALLDIR=%B"

C:\Users\Administrator>if "" == "" (set "VSINSTALLDIR=" )

C:\Users\Administrator>if "" == "" (
ECHO "WARNING: Did not find VS in registry or in VS140COMNTOOLS env var - your compiler may not work"
 GOTO End
)
"WARNING: Did not find VS in registry or in VS140COMNTOOLS env var - your compiler may not work"

Note: you may need to restart the kernel to use updated packages.
```

Figure 12: Keras library installed