

# Meeting 5

10/6/21

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# Deliverables

What did I have to do?

- Watch both videos on Fourier transform
- Apply welch function to an EEG signal

# Methodology and Learnings

## How did I do it?

- Watched and took notes on YouTube videos
- Extra sites
  - <https://www.biofeedback-tech.com/articles/2018/5/4/types-of-brain-waves>
  - <https://betterexplained.com/articles/an-interactive-guide-to-the-fourier-transform/>
- Used SciPy.signal documentation for welch function
- Created script to apply welch function to EEG signal

## What did I learn on the way?

- Fourier transform
- Signal.welch()

# Results

```
# Read data
df = read_eeg("./2020_06_04_T05_U00T_EEG01.vhdr")

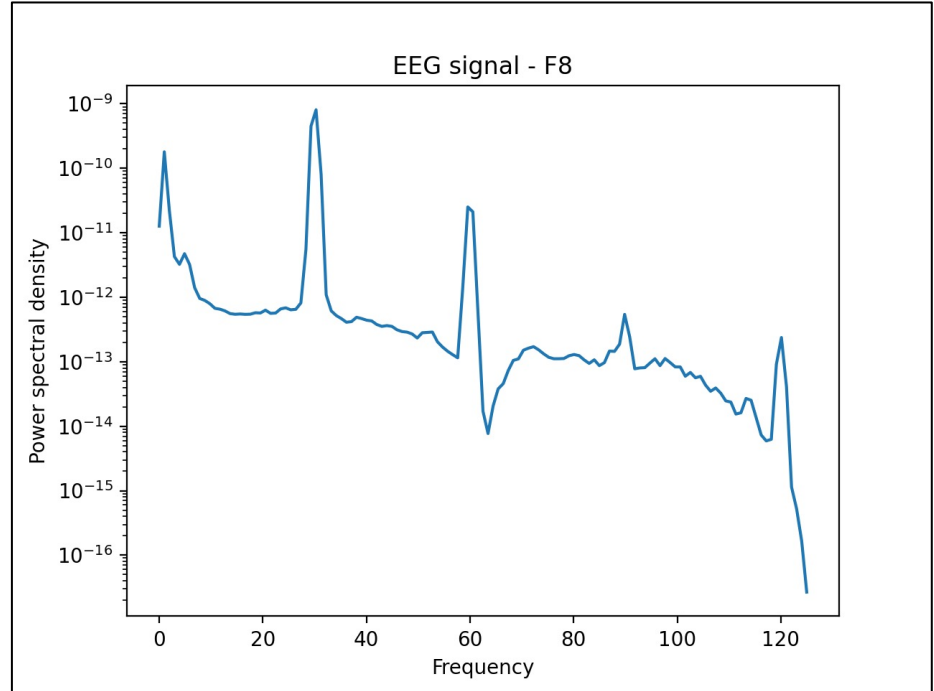
# create array for eeg signals
data_column = df.loc[:, "F8"]
f8_signal = data_column.values

data_column2 = df.loc[:, "F4"]
f4_signal = data_column2.values

# store frequency and power spectrum of signals
freq_array, psd = signal.welch(f8_signal, fs=250)
f4_freq, f4_psd = signal.welch(f4_signal, fs=250)

# plot results
f1 = plt.figure(1)
plt.semilogy(freq_array, psd)
plt.title("EEG signal - F8")
plt.xlabel("Frequency")
plt.ylabel("Power spectral density")

f2 = plt.figure(2)
plt.semilogy(f4_freq, f4_psd)
plt.title("EEG signal - F4")
plt.xlabel("Frequency")
plt.ylabel("Power spectral density")
plt.show()
```



## Results – cont.

