**Brain Computer Interaction – Basics**

**Definitions:**

* Neurons: Electrically active cells in the brain. Generate action potentials when activated.
* Synapse: A junction between 2 nerve cells, consisting of a minute gap across which impulses pass by diffusion of a neurotransmitter.
* EEG: Electroencephalogram. Derived measures of EEG activity are informative biomarkers for brain activity.
* MEG: Magnetoencephalogram.
* Artifact Signal: Error in the perception or representation of information. Any signal whose source is extraneous to the brain.
* EOG: Electrooculogram. Derived measures of EOG activity are informative biomarkers for eye activity.
* EMG: Electromyogram. Derived measures of EMG activity are informative biomarkers for muscle activity.

**Processing EEGs:**

Processing the EEG is mainly required to filter out artifact signals which are acquired along with the EEG signal. The most dangerous artifacts are those seen with the largest change in amplitude, as they could potentially be a concrete signal.

There are two types of artifacts:

* Physiological artifacts – *generated from sources in the patient’s body.*
* Extra-physiological artifacts – *generated from sources outside of the patient’s body.*

**Preprocessing steps:**

After the EEG data acquisition is completed, the offline EEG data processing starts with filtering the data. In filtering the dataset helps remove the unwanted high frequencies from the data.