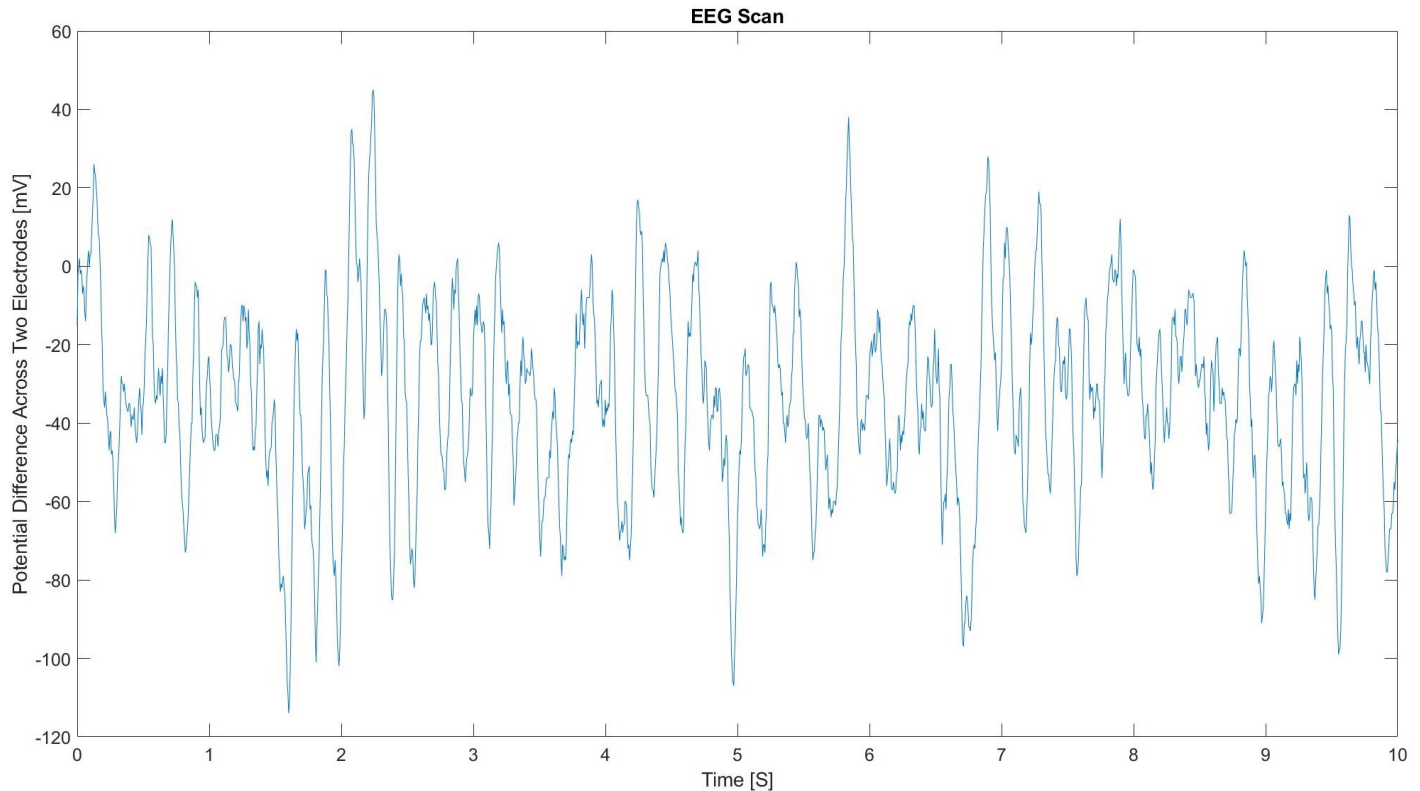


## SCIENTIFIC BACKGROUND

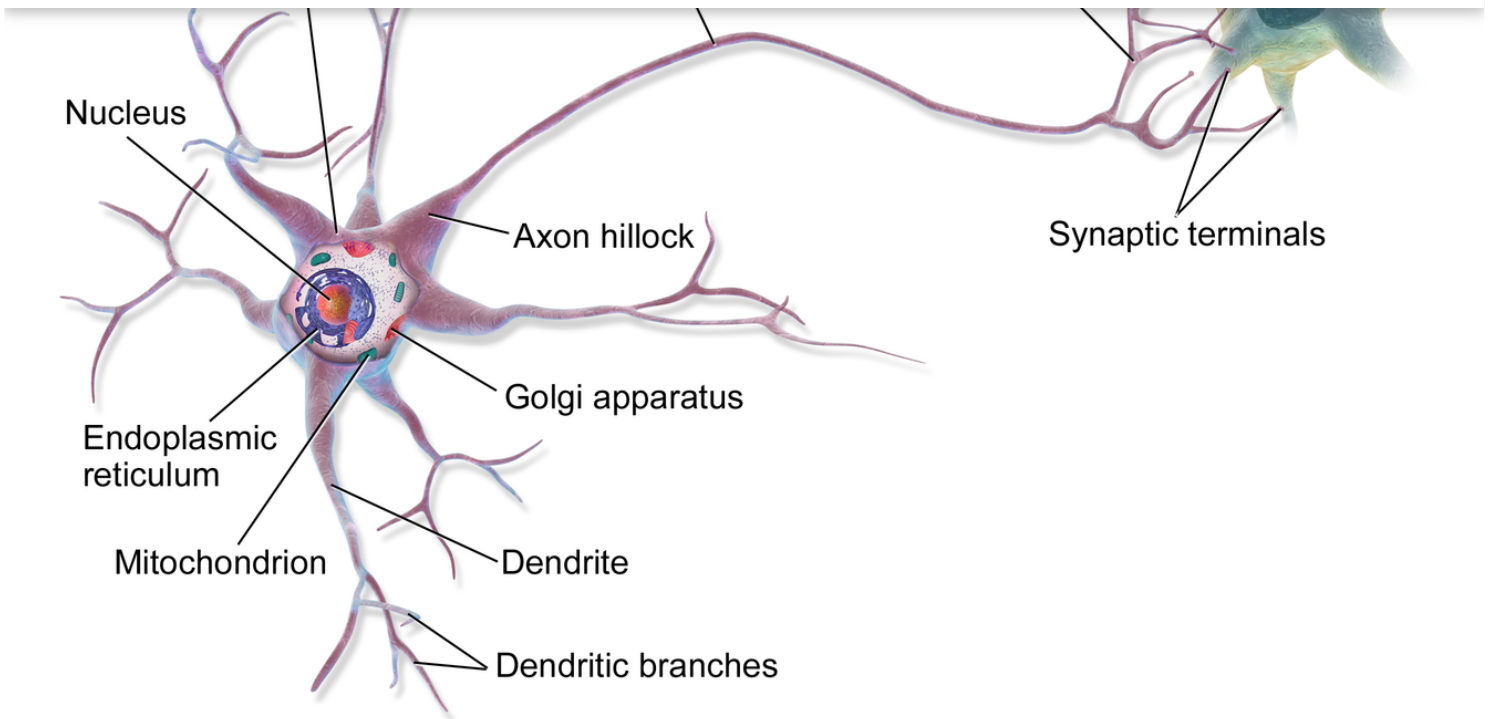
An EEG signal is a measurement of combined action potential waves between the measuring electrodes. An example of the EEG signal is shown below.



### WHAT CAUSES AN EEG WAVE?

An action potential is the change in voltage overtime as a result of an electrical signal passing through a neuron. It does so in the following manner:

- A. The charge in the cell is determined by  $\text{Na}^+$  ions.
- B. The net charge reaches the threshold in the summation zone. In other words, the ions are summed at the Axon Hillock and, once triggered, the action potential travels down the axon.
- C. Action potential reaches the sending end and the signal triggers the process in the next neurons.



The source of this image can be found at the following link: [Image Source](#).

The resulting frequencies present in an EEG reading correspond with the delay between two action potentials. Therefore, higher frequencies can occur because more channels are opening quicker or the action potentials are firing at higher speeds. With many neurons firing, the same frequencies may occur across many neurons. This results in the frequencies present in the output EEG signal.

## What Happens During a Seizure?

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# CONTACT

*Suggestions? Potential Applications? Drop a note!*

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