Clustering Coefficient: density metric for whole networks, but focused on egocentric networks.

Local clustering coefficient- A node represents the fraction of existing links of the neighbors of each pair of the node and the number of all possible connections of neighbors of the node.

Global Clustering coefficient- The global clustering coefficient is based on triplets of nodes. A triplet consists of three connected nodes. A triangle therefore includes three closed triplets, one centered on each of the nodes (n.b. this means the three triplets in a triangle come from overlapping selections of nodes). The global clustering coefficient is the number of closed triplets (or 3 x triangles) over the total number of triplets (both open and closed).

Min Cut- minimum cut in a graph that separates two specific nodes, typically referred to as the source node and the sink node. This concept is often used in graph theory to determine the minimum capacity cut, which is equal to the flow value of a maximum flow according to the max-flow min-cut theorem. The min-cut is calculated by finding the set of edges that, when removed, disconnects the source node from the sink node with the least capacity.

Maximal Cliques- Maximal cliques in centrality measures refer to a concept where the centrality of nodes in a network is evaluated based on the size of the largest clique they belong to. A maximal clique is a subset of nodes within a graph where every node is directly connected to every other node in the subset. In the context of centrality measures, such as Maximal Clique Centrality (MCC), the size of the maximal clique a node belongs to is used as a metric to assess its importance within the network.

Electroencephalography: A method to record electrical activity of the brain.

Using electroencephalography (EEG), the value produced from the electrodes is generated by recording the spontaneous electrical activity of the brain. The biosignals detected by EEG represent the postsynaptic potentials of pyramidal neurons in the neocortex. EEG is a method that involves placing electrodes along the scalp to measure voltage fluctuations, allowing the evaluation of normal brain activity. The electrical activity monitored by EEG originates in neurons in the underlying brain tissue, and the recordings made by the electrodes on the scalp vary based on their orientation and distance to the brain tissue. The value recorded is influenced by intermediary tissues and bones, which act similarly to resistors and capacitors in an electrical circuit. This means that not all neurons contribute equally to the EEG signal, with the EEG predominantly reflecting the activity of cortical neurons near the electrodes on the scalp. The observed frequencies in EEG recordings typically range between 1 and 30 Hz, with amplitudes varying between 20 and 100 μV, and are subdivided into different frequency bands such as alpha, beta, delta, and theta waves, each associated with different states of brain activity.

Papers: (brain functional connectivity)

1. <https://www.nature.com/articles/s41598-019-45289-7> (2019)
2. <https://onlinelibrary.wiley.com/doi/abs/10.1002/hbm.25683> (2022)
3. <https://www.sciencedirect.com/science/article/pii/S030645221930613X> (2019)
4. <https://www.sciencedirect.com/science/article/pii/S1746809420303591> (2021)
5. <https://ieeexplore.ieee.org/abstract/document/8901405/> (2019)
6. <https://www.sciencedirect.com/science/article/pii/S1746809422006115> (2023)

Epoch: During each epoch, all the data samples in the training dataset are exposed to the neural network for learning patterns, allowing the model to adjust its weights and improve its accuracy. The number of epochs is a hyperparameter that defines the number of times the learning algorithm will work through the entire training dataset, and it plays a crucial role in the model's ability to learn and generalize to unseen data.