STTC analysis

Based on the given dataset estimate:

- the directional STTC for each pair of neurons of the dataset

- plot the CDF of the directional STTC values and compute statistics on them

- estimate the absolute number and percentage of significant edges

Considering only the significant edges, for three different types of neuron pairs, namely, pyramidal – pyramidal, interneuron – pyramidal and pyramidal – interneuron estimate:

- the directional STTC values that correspond to these types of pairs

- plot the CDFs of the directional STTC values for each type of pairs and compute statistics on them

- estimate the absolute number and percentage of significant edges for each type of pairs

Discuss your findings.

The estimation of significant edges of the given script is based on the following relatively "relaxed" criterion:
1) STTC (A, B) > mean(null distribution pool) + 3 * std dev (null distribution pool)
2) The total number of spikes of A (B) within an STTC lag of spikes of B (A) is above 3.
   And the total number of spikes of B within a STTC lag of spikes of A is above 3. Compare your results and discuss your observations for the STTC analysis considering other "stricter" criteria e.g., above 5 std dev and 5 spikes of A within a STTC lag of spikes of B and 5 spikes of B within a STTC lag of spikes of A.

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