**Thalamus\_ALM\_CCG.ipnyb Instruction**

Pre-requisite:

File: medialALM\_mask\_150um3Dgauss\_Bilateral.mat (To check Thalamus’ CCF overlap)

And

ALM\_functionalData.nii (To check ALM’s CCF overlap)

And Pickle file (ALM\_THAL\_440959\_with0.5ms.pkl) (For Every possible ALM-THAL pair’s Raw\_CCG)

Process:

* Starts with checking the overlap between pre-requisite file’s fluorescence area and CCF location of Units.
* CCG implementation for Example neuron( Generated by inhomogeneous poisson sampling)
  + Creating example Neuron and generating raw-CCG through Siegel’s CCG function.
* CCG For ALM and THAL pairs
  + Firstly, getting overlapped ALM and THAL units
  + Aligning Spike times into trials(Centered on Sample/Go epoch)
  + Calculating/Getting Significant CCG(Raw)
    - Find the relative peak which is max value in range of 10ms
    - Find the standard deviation of firing rate in range of 50ms
    - If Relative Peak is six/seven-fold of standard deviation then it’s Significant.
* CCG of 2 Neurons in controlled environment where second neuron is same as first but with time shift of some ms.