Research Notebook

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1.1 Progress

- set up github for project
- plotted histograms of first trials
- plotted scatter plots of first trials (for stationarity)

1.2 Statistical Model

Recall that our model of the process is

$$X = \sum_{j=1}^{N} X_j, \qquad Y_j = \text{Bernoulli}(p_j), \qquad X_j = \begin{cases} N(\mu_j, \sigma_j^2) & Y_j = 1 \\ 0 & Y_j = 0 \end{cases}$$

where $N, \mu_j, \sigma_j^2, p_j$ are all unknown parameters of the model. The X_j random variable models the response amplitude of a single contact of which there are N, and the Y_j random variable models the release success of a single contact. The additivity of the potential is justified by Petterson and Einevoll [1]. Note

References

[1] Klas H Pettersen and Gaute T Einevoll. Amplitude variability and extracellular low-pass filtering of neuronal spikes. *Biophysical journal*, 94(3):784–802, 2008.