ENAS: A new software for spike train analysis and simulation

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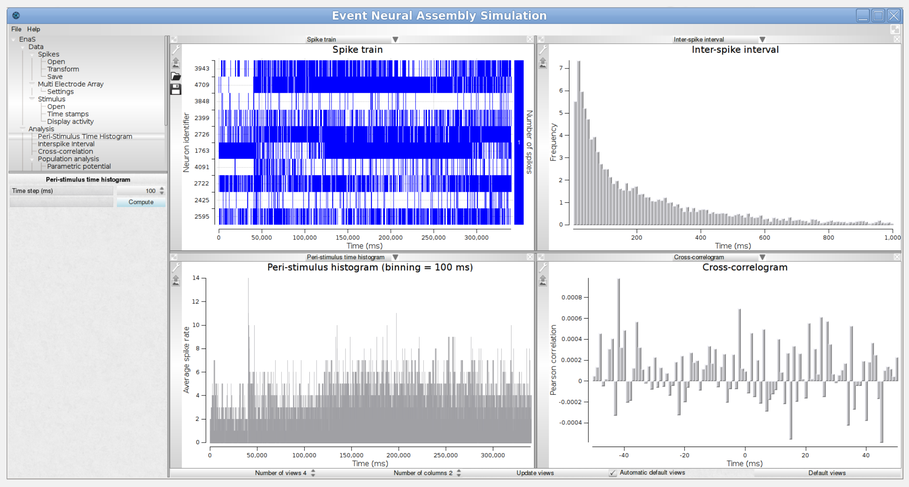
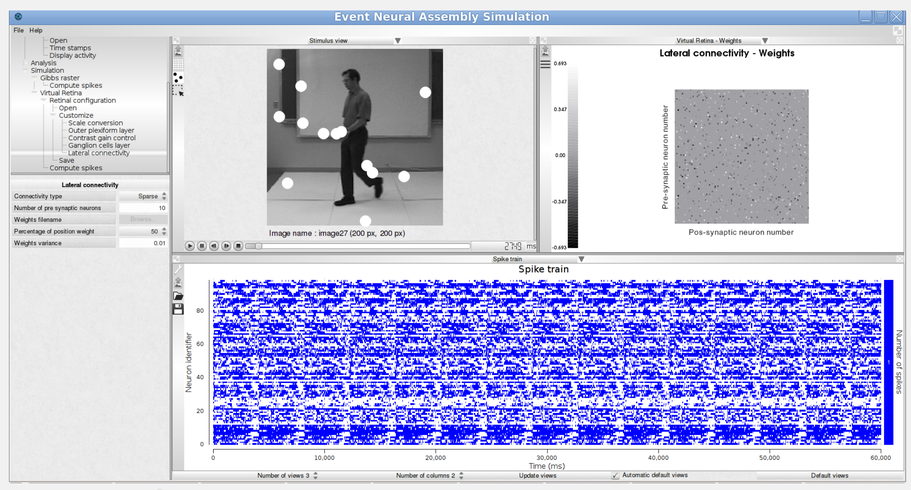
As one gains more intuitions and results on the importance of concerted activity in spike trains, models are developed to extract potential canonical principles underlying spike coding. These methods shed a new light on spike train dynamics. However, they require time and expertise to be implemented efficiently, making them hard to use on a daily basis by neuroscientists or modelers. To bridge this gap, we developed the license free multiplatform software ENAS integrating tools for spike trains analysis and simulation.

Standard analysis



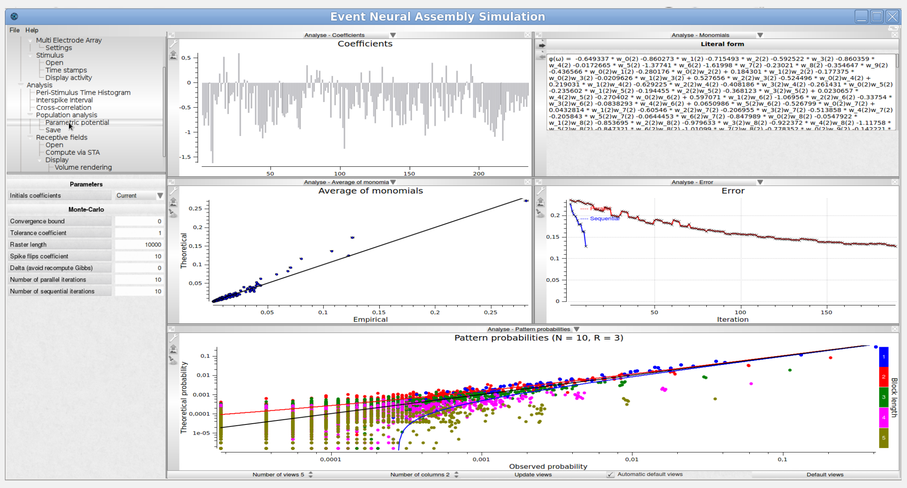
ENAS provides statistical analysis with Maximum Entropy-Gibbs distributions taking into account both spatial and temporal correlations as constraints, allowing to introduce causality and memory in statistics.

Virtual Retina simulator

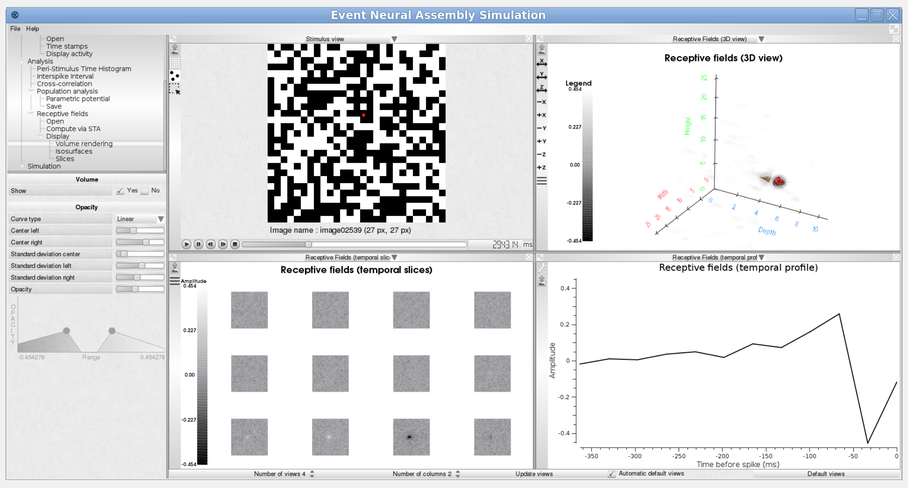


ENAS includes a virtual retina simulator that includes feedback connections from the bipolar to the OPL layer and lateral connections in the IPL. This simulator maps images into spikes in a bio plausible way.

Spatio-temporal analysis



Receptive field estimation



Other features: Crop and bin rasters, select neurons subsets according to different criteria, set MEA array configuration, generate rasters from given statistics

Multi-platform

Linux, MacOS, Windows

Fast

Parallel computing

GUI

User-friendly

Free

https://enas.inria.fr

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