Critical states of slow pattern in neuronal networks

Longbin Zeng[1]   S. Another[2]

[1]Department of Computer Science
University of Somewhere

[2]Department of Theoretical Philosophy
University of Elsewhere

Conference on Fabulous Presentations, 2003

Outline

Outline

Network Dynamics

- Network response correspond to specific neuronal parameter, including fire rate, degree of irregularity, spatiotemporal patterns in neuronal spike trains and neuronal critical dynamics.
- Explor the influence of simulation size of neuronal network as well as the community stuctural network. 2000, 5000, 10000, ..., 100 million.
- Synapase density and input heterogeneity.(to be confirmed)

Theoretical explanation

Mainly three aspects. . .

- Explain the mechanism underly the trainsition dynamics.
    - input current variablity analysis.
    - Mean-filed equation and hopf bifuraction
    - The real part of fixed point is decreasing.
- fit the network response with a simple f unction.

Outline

1. **Motivation**
   - The Basic Problem That We Studied
   - **Previous Work**

2. Our Results/Contribution
   - Main Results
   - Basic Ideas for Proofs/Implementation

Make Titles Informative.

Make Titles Informative.

Outline

Criticality in large-scale network

Fit to function $s \cdot tanh(ax + by + c) + t$

- in the small blcok, slop is 1.6
- in the large-scale block, slop is 1.4
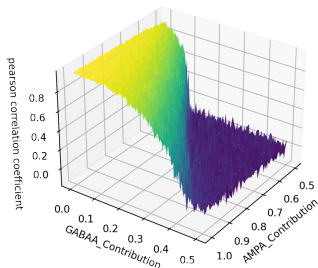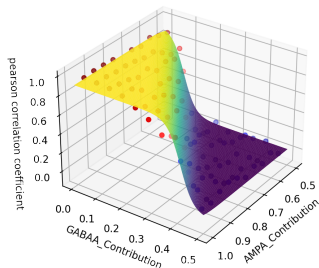

Figure: size=2k

Figure: size=100m

Criticality in large-scale network

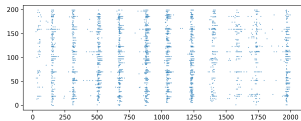Some simulation case from a fixed parameter of critical space.
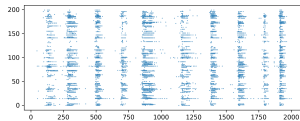

Figure: size=10k

Figure: size=100m

Make Titles Informative.

Outline

Make Titles Informative.

Make Titles Informative.

Make Titles Informative.

Summary

- The first main message of your talk in one or two lines.
- The second main message of your talk in one or two lines.
- Perhaps a third message, but not more than that.

- Outlook
  - Something you haven't solved.
  - Something else you haven't solved.

For Further Reading I

📕 A. Author.
Handbook of Everything.
Some Press, 1990.

📄 S. Someone.
On this and that.
Journal of This and That, 2(1):50–100, 2000.