Computational Neuroscience - Spike Trains

jh16031

April 2020

Question 1

Refractory period of 0 ms:

The Fano factor for the Poisson train with windows of width 10 ms: 0.9970179073127041

The Fano factor for the Poisson train with windows of width 50 ms: 0.989943484730288

The Fano factor for the Poisson train with windows of width 100 ms: 0.980695960821704

Coefficient of variation of the inter-spike interval: 0.998581210160688

Refractory period of 5 ms:

The Fano factor for the Poisson train with windows of width 10 ms: 0.7483782895906834

The Fano factor for the Poisson train with windows of width 50 ms: 0.6912647090038149

The Fano factor for the Poisson train with windows of width 100 ms: 0.6895597940509995

Coefficient of variation of the inter-spike interval: 0.8269705818507913
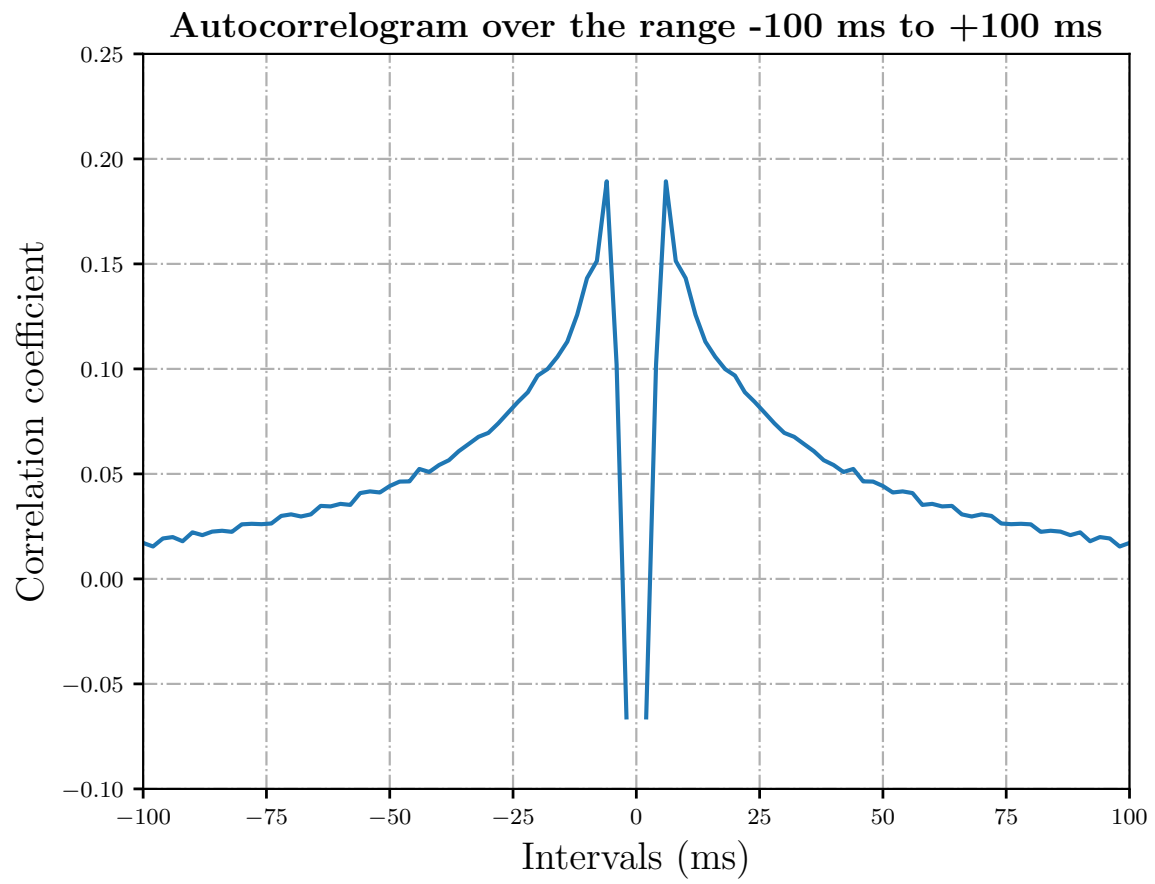
Question 2

The Fano factor for the Poisson train with windows of width 10 ms: 1.117680142627936

The Fano factor for the Poisson train with windows of width 50 ms: 2.9318084853827346

The Fano factor for the Poisson train with windows of width 100 ms: 4.105832601070875

Coefficient of variation of the inter-spike interval: 2.0085523370640965

Question 3

Autocorrelogram over the range -100 ms to +100 ms

Question 4

Spike triggered average plot over a 100 ms window