03/06/2019

CSP3

Student, Alejandro Gilson Campillo

**Structure and dynamics of large networks of interacting neurons**

Pr. Dragotti

This project tries to understand how real biological neural networks are connected by treating the system as a diffusion process. By selecting the connectivity weights of each of the neurons that maximize the likelihood of some recorded spikes occurring the structure of the network is estimated. For this project, the speed and scalability of NetRate (the implemented algorithm) is improved and its constraints are analysed. Moreover, the model of neural network and inference algorithm are changed for it to be used on a real mouse’s spike data-set and a benchmark is presented for analysing inference accuracy when no ground truth is available.