
Criterion for the detection of neural synchronization

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Résumé

Two neurons are said to be synchronized when their spike trains coincide more than when they are independent. It is commonly accepted that this phenomenon plays a very important role in the neuronal activity. The construction of statistical tests for its detection has been the subject of much interest in the literature and in particular with the work of Albert et al. (2015) on asymptotic tests of Bootstrap and permutation. This presentation is in the same vein, and will focus on the construction of a criterion ensuring the detection of synchronization in the case of a non-asymptotic test. This criterion is constructed in such a way as to ensure control of errors of the first and second kind whatever the size of the sample considered. Join work with: Éva Löcherbach, Patricia Reynaud-Bouret and Étienne Tanré.

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