

Neurons

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time-dependent entropy estimate. With this method we investigated the relationship between the predictability of the neuronal response and the frequency content in the auditory signals. The analysis quantifies the temporal precision of the neuronal coding and the memory in the neuronal response.

(Submitted on 23 Apr 2012 (v1), last revised 24 Apr 2012 (this version, v2))

Improving the Entropy Estimate of Neuronal

Andrea Grigorescu, Marek Rudnicki, Michael Isik, Werner Hemmert, Stefano Rini

In this correspondence information theoretical tools are used to investigate the statistical properties

of modeled cochlear nucleus globular bushy cell spike trains. The firing patterns are obtained from a

simulation software that generates sample spike trains from any auditory input. Here we analyze for the first time the responses of globular bushy cells to voiced and unvoiced speech sounds. Classical

entropy estimates, such as the direct method, are improved upon by considering a time-varying and

Firings of Modeled Cochlear Nucleus

Subjects: Neurons and Cognition (q-bio.NC); Information Theory (cs.IT) Cite as: arXiv:1204.5001 [q-bio.NC] (or arXiv:1204.5001v2 [q-bio.NC] for this version)

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