A Computational Model of Auditory Entrainment

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Presentation Abstract Summary   In a natural environment, it is extremely common to be surrounded by sounds originating from multiple sources. However, it is also often the case that only a few of those sources carry information which is relevant to the listener. It has been proposed that oscillation in the excitability of primary auditory neurons is one possible mechanism contributing to auditory selective attention. The phase and period of oscillation for an individual neuron depend on the neuron's tuning, as well as the physical properties of both attended and unattended stimuli. We investigate the properties of phase locking and entrainment in the context of auditory selective attention computationally. We test two entrainment functions, and compare their performance using SoftMax Regression to recreate presented stimuli from neuronal spiking behaviour. Such a model has applications ranging from voice recognition in noisy environments and noise reduction algorithms to the study of the physiological mechanisms of entrainment.

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Keywords

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