Single neuron and population coding of natural sounds in auditory cortex

By mizrahi
Created 11/20/2013
By mizrahi November 20, 2013


Abstract:

The auditory system drives behavior using information extracted from sounds. Early in the auditory hierarchy, circuits are highly specialized for detecting basic sound features. However, already at the level of the auditory cortex the functional organization of the circuits and the underlying coding principles become different. Here, we review some recent progress in our understanding of single neuron and population coding in primary auditory cortex, focusing on natural sounds. We discuss possible mechanisms explaining why single neuron responses to simple sounds cannot predict responses to natural stimuli. We describe recent work suggesting that structural features like local subnetworks rather than smoothly mapped tonotopy are essential components of population coding. Finally, we suggest a synthesis of how single neurons and subnetworks may be involved in coding natural sounds.

Journal:
Current Opinion in Neurobiology

Volume:
24

Pagination:
103 - 110

Date Published:
2014/2//

UPCOMING EVENTS

Learn more about our exciting upcoming events!

read more

Studying at ELSC
Our Int'l Ph.D. program provides outstanding students with top-notch courses in computational neuroscience.

read more

The Building

The Jerusalem Brain Sciences Building will provide a state-of-the-art research and teaching facility for the Edmond and Lily Safra Center for Brain Sciences.

read more

ELSC Media Channel

Get into our media channel and investigate ELSC's latest videos: seminars, public lectures, courses and video articles.

read more