ENGINEERING SCIENCES & APPLIED MATH--FEATURED SPEAKER

Algorithms of the Early Olfactory System

Thomas Cleland

Department of Psychology, Cornell University

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M416 (ESAM Conference Room), Tech

The network architecture of the olfactory system is peculiar, but well adapted to the particular challenges of chemosensation. Olfactory signals are intrinsically high-dimensional, lacking the two-dimensional structure of visual images that facilitates their recognition. Odor signal identification is further challenged by background odorants that disrupt the afferent activity patterns on which odor recognition ostensibly depends. I here illustrate the nature of the problem, describe some computational motifs in olfactory bulb circuits, and present a current theoretical framework for odor learning in the olfactory bulb that promises to enable these difficult identifications under noise. Moreover, this framework offers a potentially powerful solution to the “small n, large p” problem for classification of relatively unstructured arbitrary data such as medical diagnostics.

This ESAM event is co-sponsored by RTG: NQuB Northwestern University Quantitative Biology Research Training Program

Note: Cookies will be served at 3:30