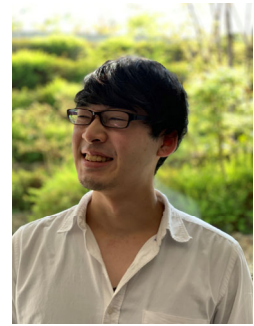


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Talk Title:

Semantic context-dependent neural representations of odors in the human primary olfactory cortex revealed by 7T MRI

Abstract:

Olfactory perception depends not only on olfactory inputs but also on semantic contexts. Odor perception has been shown to be represented in multi-voxel activity patterns in the piriform cortex, a part of the primary olfactory cortex. However, it remains unclear whether semantic contexts modulate odor representation in this region. Here, we investigated the effects of semantic contexts by labeling odorants with two different, but congruent words. We found that identical odorants labeled with different words were perceived differently. This labeling effect was observed in multi-voxel activity patterns in the piriform cortex, as the searchlight decoding analysis distinguished identical odorants with different labels for half of the examined stimulus pairs. Moreover, significant functional connectivity was observed between parts of the piriform cortex that were modulated by labels and regions associated with semantic and memory processing. These results suggest that multi-voxel patterns of piriform activity can be modulated by semantic contexts, possibly due to communication between the piriform cortex and the semantic and memory regions.

Biographical information:

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