This Week in The Journal

Cortical Decipherment of External and Internal Stimuli

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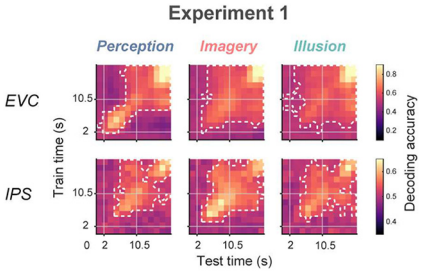
(see pages 6508–6524)

The analogy of our brains being like sponges, taking in information about our external environments, bears truth. But the analogy fails to address that just as the brain processes external information, it is also evaluating internally derived illusory or imagined stimuli. While deciphering between these drastically different kinds of information is critical for our conception of reality and our ability to navigate daily life, the question of how the brain differentiates between external and internal perceptual experiences remains unanswered. In this issue, Li et al. utilized a combined fMRI, eye-tracking, and multivariate decoding and encoding approach to investigate the neural underpinnings of perceived, imagined, and illusory experiences in humans. They found that the parietal cortex differentiated between experiences subjectively perceived as internal (imagery) and external (perception and illusion), whereas the visual cortex differentiated between objectively external (perception) and internal (imagery and illusion) experiences. Thus, these data suggest that the parietal cortex represents visual "belief," while the visual cortex represents objective visual "fact," regardless of subjective belief. These findings shed some light on how cortical brain regions distinguish between external and internal stimuli and ultimately advance our understanding of the perceptual experience as well as disease states in which individuals have difficulty distinguishing between external and internal stimuli.



Temporal generalization results in perception, imagery, and illusion conditions, in EVC (early visual cortex) and IPS (intraparietal sulcus) of Experiment 1. ROIs were contralateral to the side of stimulus presentation. The *x*-axis and *y*-axis denote test and train time, respectively. White dashed lines denote clusters with significant orientation representations after correction.

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