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To Pay Attention, the Brain Uses Filters, Not a Spotlight

A brain circuit that suppresses distracting sensory information holds important clues about attention and other cognitive processes.

Quanta Magazine | Jordana Cepelewicz



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We attend to only a fraction of the sensory data available to us. New results are helping to explain how the brain filters out the sensations least interesting to it at any moment. Credit: Jason Lyon for Quanta Magazine.

We can pick out a conversation in a loud room, amid the rise and fall of other voices or the hum of an air conditioner. We can spot a set of keys in a sea of clutter, or register a raccoon darting into the path of our onrushing car. Somehow, even with massive amounts of information flooding our senses, we're able to focus on what's important and act on it.

Attentional processes are the brain's way of shining a searchlight on relevant stimuli and filtering out the rest. Neuroscientists want to determine the circuits that aim and power that searchlight. For decades, their studies have revolved around the cortex, the folded structure on the outside of the brain commonly associated with intelligence and higher-order cognition. It's become clear that activity in

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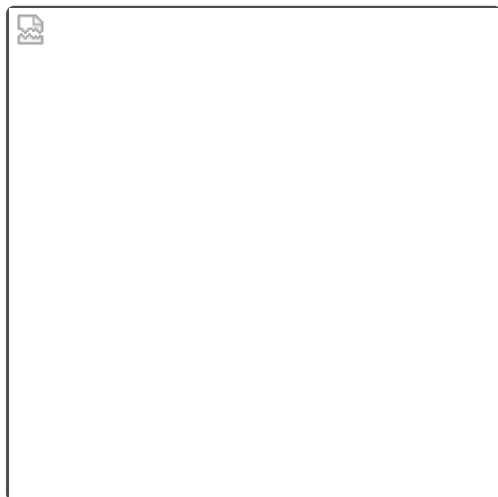


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