

# The link between space and time along the human cortical hierarchy

*Tuesday, September 24, 2024 9:00 AM (20 minutes)*

In humans, very few studies have directly tested the link between the neural coding of time and space. Here we combined ultra-high field functional magnetic resonance imaging with neuronal-based modeling to investigate how and where the processing and the representation of a visual stimulus duration is linked to that of its spatial location. Results show a transition in the neural response to duration: from monotonic and spatially-dependent in early visual cortex, to unimodal and spatially-invariant in frontal cortex. This transition begins in extrastriate areas V3AB, and it fully displays in the intraparietal sulcus (IPS), where both unimodal and monotonic responses are present and where neuronal populations are selective to either space, time or both. In IPS, space and time topographies show a specific relationship, although along the cortical hierarchy duration maps compared to spatial ones are smaller in size, less clustered and more variable across participants. These results help to identify the mechanisms through which humans perceive the duration of a visual object with a specific spatial location and precisely characterize the functional link between time and space processing, highlighting the importance of space-time interactions in shaping brain responses.

**If you're submitting a poster, would you be interested in giving a blitz talk?**

**If you're submitting a symposium talk, what's the symposium title?**

Time perception: from sensation to memory

**If you're submitting a symposium, or a talk that is part of a symposium, is this a junior symposium?**

Yes

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