

VIRGINIE VAN WASSENHOVE

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Virginie van Wassenhove received her PhD in the Neurosciences and Cognitive Sciences program of the University of Maryland, College Park (2004) under the direction of Prof David Poeppel and Dr Ken W. Grant. During her graduate training, she focused on the perception and cortical bases (MEEG, fMRI) of audiovisual speech processing as an example of predictive coding in multisensory integration.

In 2005, she worked with Prof Srikantan Nagarajan (UCSF) on auditory learning and plasticity. From 2006 to 2008, she was implicated in various projects at UCLA with Dr Ladan Shams, and Dr Dean Buonomano and Caltech with Prof Shinsuke Shimojo, which included implicit multisensory statistical learning, time perception, gesture communication, and interpersonal interactions. Late 2008, she joined NeuroSpin and the Cognitive Neuroimaging Unit directed by Prof Stanislas Dehaene to head the MEG lab.

In 2012, she became an INSERM group leader of the Brain Dynamics research team. In 2013, she obtained her HDR (Habilitation à Diriger des Recherches; highest degree achievable in France) and became CEA Director of Research (DR). Her research interests focus on temporal cognition and multisensory integration in humans.

Making sense of time in the human brain

We are all experts in “experiencing time” but introspection provides us with very little intuitions regarding which neural mechanisms underlie what we refer to as time perception and temporal cognition. Over the last decades, research in the neurosciences of cognition has shown that different parts of our brain and different neural mechanisms contribute to various mental representations for time perception and cognition. In this talk, I will discuss the idea that be conscious of time is to render intelligible the non-stationarities of brain activity. I will argue that clocking mechanisms are foundational to comprehend the biology of the mind by reframing temporalities from the perspective of the brain itself (as generator-observer) as opposed to that of the external observer. These notions will be illustrated with empirical work of human behavior and functional neuroimaging. Examples will range from low-level processing of sensory simultaneity - i.e., how our brain establishes order and simultaneity across sensory modalities - to high-level cognition as ordering of mental events along a psychological arrow - i.e., mental time travel.