

Virginie van Wassenhove

She/her • French, single, no children • DoB: Feb. 26th 1976 • FR, EN

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Appointments

- 2022- **Research Director**, CEA, DRF/Inst. Joliot, NeuroSpin, France.
- 2012- **Cognition & Brain Dynamics leader**, INSERM Cognitive Neuroimaging Unit, France.
- 2019-22 International Expert Senior, CEA, NeuroSpin, France.
- 2014-19 Expert Senior, CEA, NeuroSpin, France.
- 2008-17 Executive Director, NeuroSpin MEG, CEA, NeuroSpin, France.
- 2008-12 Associate Researcher, INSERM U992, France.

Education & Training

- 2013 **HDR**, Habilitation à Diriger des Recherches, UPMC (Paris VI), France.
- 2005-08 Post-Doctoral Research Scholar, CALTECH, USA.
- 2005-06 Post-Doctoral Research Scholar, UCLA, USA.
- 2004-05 Post-Doctoral Research Scholar, UCSF, USA. *PI: Prof S. Nagarajan*
- 2024 **PhD** in Neurosciences & Cognitive Sciences [Aug. 20th 2024] UMCP, College Park, USA.
- 1998 **B.Sc.** [Dec. 20th 1998] University of Maryland College Park, College Park, USA.

Scientific Leadership & Expertise Prizes

I review grant proposals for major national and international foundations (ERC, NW0, DFG, ANR, NSF, NSERC...). I serve as ad-hoc reviewer for many reputable journals (Science, Sci Adv, Nature Comm, PNAS, Cereb Cortex, J Neurosci, J Neurophys, TiCS, Cognition, Curr Biol...). Since 2020, I serve as an Associate Editor for the Journal of Cognitive Neuroscience (MIT Press) and as a Reviewing Editor at eLife.

Grants and Community Fundraising

I have been awarded a total of 4 M€ in the course of 14 years of independent research. As P.I. for my team (ERC StG MindTime; 1.5 M€; ANR JCJC BrainTime 400 k€). As leading P.I. in collaborative projects (ANR PRCE Wildtimes 611 k€; IDEX NeuroSaclay 75 k€). As co-P.I., European FET (Experience; 750 k€) and ANR PRC (Autotime 200 k€; Multifrac 350 k€). Additionally, I co-lead the DIM C-Brains with S. Picaud and J.-C. Poncer, which whom we raised ~12 M€ to strengthen the neuroscience and cognitive science community of the Ile-de-France region.

Mentoring & Academia

I have mentored 12 postdoctoral fellows, 16 PhD students (8 as mentor and director; 3 as co-director; 5 as advisor) and more than 30 master students. I have contributed to 5 Habilitation juries, 18 PhD juries, and 8 PhD advisory boards. I contributed to summer schools and lectures over the years. From 2011 to 2017, I revamped the Advanced Cognitive Neurosciences Graduate course of the Cogmaster at the Ecole Normale Supérieure (ENS), Paris, France.

Scientific discoveries and 10 recent key publications

[[Google Scholar](#)]

I contributed >70 articles in international peer-reviewed journals (incl. 1 Nat Comm, 1 Nat Hum Behav, 1 Psc Sci, 3 PNAS, 5 J Neurosci, 1 J Neurophys, 6 J Cogn Neurosci).

Non-clocking roles of neural oscillations in timing

Azizi, L., Polti, I., van Wassenhove, V. (2023, *in press*). J Neurosci.

Alpha brain rhythms are canonical markers of states of consciousness. This MEG study shows that the relative bursting time of alpha activity predicts an individual's retrospective estimation of how much time has just elapsed. Remarkably, this relationship only holds true when the individual does not attend to time and vanishes when attending to it. We propose that alpha bursts temporally track the states of awareness in episodic memory, from which future recollections of elapsed time will be derived.

Kononowicz, T. W., Roger, C., & van Wassenhove, V. (2019). Cerebral Cortex, 29(10), 4366-4380.
Grabot, L., et al. (2019). J Neurosci, 39(17), 3277-3291.

This series of MEG work shows that (1) beta oscillations transiently inhibits activity setting a relaxation time at the onset of the production of a time interval (temporal accuracy); (2) the distances between beta neural trajectories may serve as read-out for conscious timing (temporal metacognition); (3) the coupling strength between alpha and beta oscillations during that time informs on individuals' temporal precision (but not its accuracy).

Temporal coincidence in multisensory integration

Pesnot Lerousseau, J., et al. (2022) Nat Commun 13, 2489.

The study suggests the existence of multisensory correlation detectors in the human brain, explaining how and why multisensory causal inference is determined by the temporal correlation of multisensory signals.

Grabot, L., & van Wassenhove, V. (2017). Time order as psychological bias. Psyc Sci, 28(5), 670-678.

We show the existence of stable inter-individual differences in temporal order judgments: individuals require different temporal delays between sensory events to be perceived as being simultaneous. Attention can modulate, but does not eradicate, these individual temporal idiosyncrasies.

Chalas, N., et al. (2023). Iscience, 26(3).

Desynchronized audiovisual speech organizes cortical dynamics into a bipartite network, i.e. a network of brain areas that synchronize, hierarchically, at different time scales. We show that speech-specific temporal statistics are processed at the highest hierarchical level, while sensory delays engage the sensorimotor system. Our results predict the existence of AV speech delays priors in an internal speech model.

Mental timelines

Gauthier, B., Pestke, K., & van Wassenhove, V. (2019). Cerebral Cortex, 29(10), 4398-

Gauthier, B., & van Wassenhove, V. (2016). J Neurosci, 36(47), 11891-11903

Gauthier, B., & van Wassenhove, V. (2016). Cognition, 154, 55-68.

This series of behavioral, MEG, and fMRI studies explore the endogenous manipulation of the sequence of events (ordinality) along their spatial or temporal dimensions and different coordinate systems (allo- and ego-centric).

Large-scale collaboration and Open Science

Chaumon, M., et al. (2022). Nature Human Behaviour, 1-13.

Large-scale international study and open-source database dedicated to temporal cognition and more (memory, decision-making,...) containing psychological state questionnaires and behavioral tasks during the Covid-19 lockdowns.