

Pablo Barttfeld

Independent Researcher, CONICET
Instituto de Investigaciones Psicológicas
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RESEARCH PROFILE Cognitive neuroscientist working at the intersection of **consciousness**, **metacognition**, and **brain dynamics**. My research combines neuroimaging (fMRI, EEG), computational modeling, and behavioral paradigms to study how the brain supports awareness and decision under uncertainty. I lead the [Cognitive Science Group](#) at CONICET-UNC.

CURRENT POSITION **Independent Researcher (Investigador Independiente, CONICET)** 2016–present
Instituto de Investigaciones Psicológicas · Universidad Nacional de Córdoba, Argentina

EDUCATION **Diploma in Data Science and Machine Learning** 2024
Universidad Nacional de Córdoba, Argentina

Postdoctoral Fellow 2013–2015
Inserm Cognitive Neuroimaging Unit, NeuroSpin / CEA-Saclay, France
Supervisors: Stanislas Dehaene & Ghislaine Dehaene-Lambertz

Postdoctoral Fellow 2011–2013
Integrative Neuroscience Laboratory, Physics Dept., UBA, Argentina
Supervisor: Mariano Sigman

Ph.D. in Engineering 2004–2010
Universidad de Buenos Aires (UBA), Argentina
Supervisor: Mariano Sigman

M.Sc. in Biology 1997–2002
Universidad Nacional de Córdoba (UNC), Argentina

PUBLICATIONS * equal contribution.

Peer-reviewed articles

1. Della Bella G, Vélez Picatto A, Galván Rial S, Cukier S, Foa Torres G, Catanzariti M, Mateos D, Lamberti P, Cardaña E*, **Barttfeld P***. The Neurophenomenology of a Self-Induced Transcendental Visionary State: A Case Study. *NeuroImage*. 2026.
2. Legaz A, Moguilner S, **Barttfeld P***, *et al.*, Hernández H, Ibañez A. Global compound physical and social exposome and brain clocks in aging and dementia. *Nature Medicine*. 2026.
3. Della Bella G, Sarton B, Mattia G, Peran P, Lamberti W, **Barttfeld P***, Silva S*. Brain dynamic organization at the acute stage of severe brain injury. *NeuroImage*. 2025.
4. Comay N, Solovey G*, **Barttfeld P***. Decisions are based on less information than metacognitive judgments in multi-alternative contexts. *Journal of Experimental Psychology: LMC*. 2025.
5. Comay N, Della Bella G, **Barttfeld P**. Iconic vs. working memory metacognition to evaluate the richness of perception: a registered report. *Royal Society Open Science*. 2025.
6. **Barttfeld P**, Comay N, Embon I, Solovey G. Pre- and post-decision signals of certainty in changing minds. *Trends in Neurosciences*. 2025.
7. Aguirre J, **Barttfeld P**, Martín-Arévalo E, Lupiáñez J, Luna F. Testing thought-probe frequency for measuring mind-wandering along with vigilance and cognitive control loss. *Behavioral Research Methods*. 2025.

8. Hazelton J, Migeot J, Gonzalez-Gomez R, *et al.*, **Barttfeld P**, Ibanez A. Cardiovascular risk factors and the allostatic interoceptive network in dementia. *Cardiovascular Research*. 2025.
9. Della Bella G*, Zang D*, Gui P*, Mateos D, Sitt J, Bekinschtein T, *et al.*, **Barttfeld P***. Detection of EEG dynamic complex patterns in disorders of consciousness. *Communications Biology*. 2025.
10. Cardaña E, Berkovich-Ohana A, Valli K, **Barttfeld P**, *et al.* Bringing Order to Disarray: A Consensus Taxonomy of Altered States of Consciousness. *Psychology of Consciousness*. 2025.
11. Gonzalez-Gomez R, Cruzat J, Hernández H, *et al.*, **Barttfeld P**, Ibañez A. Qualitative and quantitative educational disparities and brain signatures in aging and dementia. *eClinicalMedicine*. 2025.
12. Hazelton J*, Della Bella G*, **Barttfeld P**, *et al.* Altered spatiotemporal brain dynamics of interoception in behavioural-variant frontotemporal dementia. *eBioMedicine*. 2025.
13. Zapata J, Comay N, **Barttfeld P**, Solovey G, Saal A, Ahumada J. Metacognitive sensitivity on the Iowa Gambling Task reveals awareness as a necessary condition for advantageous performance. *Experimental Psychology*. 2025.
14. Legaz A, Altschuler F, Gonzalez-Gomez R, *et al.*, **Barttfeld P**, Ibañez A. Structural inequality linked to brain volume and network dynamics in aging and dementia across the Americas. *Nature Aging*. 2024.
15. Embon I, Gerbaudo MA, Ramos Usaj A, Iorio A, **Barttfeld P***, Solovey G*. Exploring the Relationship between Dysfunctional Personality Traits with Metacognition and Confidence. *Current Psychology*. 2024.
16. Ibanez A, Moguilner S, Baez S, *et al.*, **Barttfeld P**, Miller B. Brain clocks capture diversity and disparities in aging and dementia across geographically diverse populations. *Nature Medicine*. 2024.
17. Teitelbaum Dorfman F, Kogan B, **Barttfeld P**, García A. Bilinguals on the footbridge: The role of foreign-language proficiency in moral decision making. *Bilingualism: Language and Cognition*. 2024.
18. Legaz A, Prado P, Moguilner S, *et al.*, **Barttfeld P**, Ibañez A. Social and non-social working memory in neurodegeneration. *Neurobiology of Disease*. 2023.
19. Luna F, Aguirre J, Martín-Arévalo E, Lupiáñez J, **Barttfeld P**. Different oscillatory rhythms anticipate failures in executive and arousal vigilance. *Frontiers in Cognition*. 2023.
20. Embon I, Cukier S, Iorio A, **Barttfeld P***, Solovey G*. Is visual metacognition associated with ASD traits? *Consciousness and Cognition*. 2023.
21. Luna F, Aguirre J, Ibañez A, Martín-Arévalo E, Lupiáñez J, **Barttfeld P***. Event-related potentials associated with attentional networks evidence changes in executive and arousal vigilance. *Psychophysiology*. 2023.
22. Comay N, Della Bella G, Lamberti W, Sigman M, Solovey G*, **Barttfeld P***. The presence of irrelevant alternatives paradoxically increases confidence in perceptual decisions. *Cognition*. 2023.
23. Luna F, **Barttfeld P**, Martín-Arévalo E, Lupiáñez J. Cognitive load mitigates the executive but not the arousal vigilance decrement. *Consciousness and Cognition*. 2021.
24. Alcaide S, Sitt J, Horikawa T, Romano A, Maldonado A, Ibañez A, Sigman M, Kamitani Y, **Barttfeld P**. fMRI lag structure during waking up from early sleep stages. *Cortex*. 2021.
25. Luna F, **Barttfeld P**, Martín-Arévalo E, Lupiáñez J. The ANTI-Vea task: analyzing the executive and arousal vigilance decrements while measuring the three attentional networks. *Psicológica*. 2021.

26. Luna F, Román-Caballero R, Lupiáñez J, **Barttfeld P**, Martín-Arévalo E. Online High-Definition tDCS over the right fronto-parietal network improves phasic alertness and reduces the executive vigilance decrement. *Neuropsychologia*. 2020.
27. Demertzi A, Tagliazucchi E, Dehaene S, Deco G, **Barttfeld P**, Raimondo F, Rohaut B, Schiff N, Owen A, Laureys S, Naccache L, Sitt J. Human consciousness is supported by dynamic complex patterns of brain signal coordination. *Science Advances*. 2019.
28. Uhrig L, Sitt J, Jacob A, Tasserie J, **Barttfeld P**, Dupont M, Dehaene S, Jarraya B. Resting-state dynamics as a cortical signature of anesthesia in monkeys. *Anesthesiology*. 2018.
29. **Barttfeld P***, Abboud S*, Lagercrantz H, Adén U, Padilla N, Edwards AD, Cohen L, Sigman M, Dehaene S, Dehaene-Lambertz G. A lateral-to-mesial organization of human ventral visual cortex at birth. *Brain Structure and Function*. 2018.
30. Ais J, Zylberberg A, **Barttfeld P**, Sigman M. Individual differences in the shape, bias and precision of confidence distributions across perceptual decisions. *Cognition*. 2016.
31. **Barttfeld P**, Bekinschtein T, Salles A, Stamatakis A, Adapa R, Menon T, Sigman M. Frontoparietal connectivity predicts anaesthetic concentration but thalamic networks index conscious report. *NeuroImage: Clinical*. 2015.
32. **Barttfeld P***, Uhrig L*, Sitt J*, Sigman M, Jarraya B, Dehaene S. A signature of consciousness in the dynamics of resting-state brain activity. *Proceedings of the National Academy of Sciences*. 2015.
33. Sedeño L, Couto B, Melloni M, *et al.*, **Barttfeld P**, Ibañez A. How do you feel when you can't feel your body? Interoception, functional connectivity and emotional processing in Depersonalization-Derealization Disorder. *PLoS One*. 2014.
34. **Barttfeld P***, Petroni A*, Baez S, *et al.* Functional Connectivity and Temporal Variability of Brain Connections in Adults with ADHD or Bipolar Disorder: A Default Mode Network Analysis. *Neuropsychobiology*. 2014.
35. Couto B, Salles A, Sedeño L, *et al.*, **Barttfeld P**, Ibañez A. The man who feels two hearts: The different pathways of interoception. *Social Cognitive and Affective Neuroscience*. 2013.
36. **Barttfeld P**, Amoroso L, Ais J, Cukier S, Bavassi L, Tomio A, Manes F, Ibañez A. Organization of brain networks governed by long-range connections index autistic traits in the general population. *Journal of Neurodevelopmental Disorders*. 2013.
37. **Barttfeld P**, Wicker B, Graziano M, Leiguarda R, Sigman M. Distinct patterns of functional brain connectivity correlate with objective performance and subjective beliefs. *Proceedings of the National Academy of Sciences*. 2013.
38. Gallos L, **Barttfeld P**, Havlin S, Sigman M, Makse H. Collective behavior and critical fluctuations in the spatial spreading of obesity, diabetes and cancer. *Scientific Reports*. 2012.
39. Zylberberg A, **Barttfeld P**, Sigman M. The construction of confidence in a perceptual decision. *Frontiers in Integrative Neuroscience*. 2012.
40. **Barttfeld P**, Wicker B, Cukier S, Navarta S, Leiguarda R, Sigman M. State-dependent changes of connectivity patterns and functional brain network topology in Autism Spectrum Disorder. *Neuropsychologia*. 2012.
41. **Barttfeld P**, Wicker B, Cukier S, Navarta S, Lew S, Sigman M. A big world network in ASD: Dynamical connectivity analysis reflects a deficit in long-range connections and an excess of short-range connections. *Neuropsychologia*. 2011.
42. Yorio A, Tabullo A, Wainseboim A, **Barttfeld P**, Segura E. Event-related potential correlates of perceptual and functional categories. *Neuroscience Letters*. 2008.
43. Abril A, **Barttfeld P**, Bucher E. The effect of fire and overgrazing disturbances on soil carbon balance in the Dry Chaco forest. *Forest Ecology and Management*. 2005.

Preprints

1. Comay N, Solovey G*, **Barttfeld P***. Confidence phenotypes: A unified computational account of value and decision certainty in reinforcement learning. *PsyArXiv*. 2026.

Book Chapters

1. Fogliatti E, Galván Rial S, Della Bella G, **Barttfeld P**. Del ritual al protocolo: el conflicto en torno a los psicodélicos. En: A. Pamela Paz García (Ed.), *Drogas y bien público*. Instituto de Investigaciones Psicológicas, Córdoba. 2025. ISBN 978-987-47803-5-5.

SUPERVISION

Postdoctoral Fellows

- Santiago Redondo (Psychology, UNC) 2024–2026

Ph.D. Students

- Sebastián Galván Rial (Neuroscience, UNC) est. 2029
- Julieta Zapata (Psychology, UNC) est. 2025
- Julieta Aguirre (Psychology, UNC) est. 2026
- Iair Embon (Neuroscience, UNC) est. 2026
- Nicolás Comay (Neuroscience, UNC) est. 2026
- Gabriel Della Bella (Physics, UNC) completed 2025
- Renato Paredes (Neuroscience, UNC) completed 2025
- Matías Palmucci (Neuroscience, UNC) completed 2025
- Leticia Sarli (Neuroscience, UNC) completed 2025
- Federico Cavana (Neuroscience, UNC) completed 2025
- Fernando Luna (Psychology, UNC) completed 2019

M.Sc. Students

- Julieta Irazuzta, Vera Candusso, Sebastián Galván Rial (Psychology, UNC) 2025
- Federico Teitelbaum Dorfman (Psychology, UNC) 2022
- Rocío Rodríguez (Psychology, UNC) 2021
- Nicolás Comay (Psychology, UNC) 2020
- Julieta Aguirre (Psychology, UNC) 2019
- Santiago Alcaide, Álvaro Romano (Biomedical Engineering, UNC) 2018
- Marcos Grillo (Psychology, Universidad Favaloro) 2018
- Joaquín Ais — co-supervision (Biology, UBA) 2016

GRANTS & FUNDING Note: amounts in ARS/EUR not publicly disclosed for PICT grants; durations are standard for each scheme (PICT: 3 yr; STIC-AmSud: 2 yr).

- **PICT 2022** (PI) — ANPCyT, Argentina 2024–2026
- **STIC-AmSud Program** (PI) — ANID, Chile 2023–2024
- **Center for Open Science / Templeton Foundation** (PI) — Consciousness research 2023
- **PICT 2021 Argentina Innovadora 2020** (PI) — ANPCyT 2021–2024
- **PICT 2018** (Researcher) — ANPCyT 2018–2021
- **Grupos de Reciente Formación** (PI) — MinCyT Córdoba 2018
- **CONICET short-stay grant for young researchers** 2018
- **Primar Grant** (Co-PI) — UNC 2018
- **PICT Young Investigator** (PI) — ANPCyT 2015–2018
- **Return-home grant Raíces** — MinCyT Argentina 2015
- **INSERM postdoctoral grant** — INSERM, France 2013–2015

	<ul style="list-style-type: none"> • James S. McDonnell Foundation — II Latin American School, Cognitive & Neural Sciences 2012 • CONICET travel grant — Cambridge University, UK 2012 • Postdoctoral scholarship — CONICET 2011–2013 • Raúl Carrea Fellowship — postgraduate 2010 • CNRS travel grant (ECOS project) — France 2009 • PhD scholarship — Universidad de Buenos Aires 2004–2010 • Santa Fe Institute Summer School — Qingdao, China 2004
RESEARCH STAYS ABROAD	<ul style="list-style-type: none"> • Institut du Cerveau et de la Moelle Épinière, Paris, France 2019 · 3 months • Addenbrooke's Hospital, Cambridge University, UK 2012 · 2 months • Institut de Neurosciences Cognitives de la Méditerranée, Marseille, France 2009 · 2 months
EDITORIAL & REVIEWING	<p>Editorial Roles</p> <hr/> <ul style="list-style-type: none"> • Associate Editor, <i>Imaging Neuroscience</i> 2023–present • Associate Editor, <i>NeuroImage: Reports</i> 2024–present <p>Ad hoc Reviewer</p> <hr/> <p><i>Nature Communications, Communications Psychology, Communications Biology, Journal of Neuroscience, NeuroImage, Cerebral Cortex, Human Brain Mapping, Frontiers in Human Neuroscience, Frontiers in Aging Neuroscience, Brain and Cognition, CABN, Translational Psychiatry, Journal of Neurophysiology, Journal of Psychiatric Research, Developmental Psychology, and others.</i></p> <p>Invited Expert Review</p> <hr/> <ul style="list-style-type: none"> • Metascience Novelty Indicators Challenge, University of Sussex 2026
GRANT & THESIS EVALUATION	<p>Grant Review Panels</p> <hr/> <ul style="list-style-type: none"> • NWO Talent Programme Vici, Dutch Research Council 2025 • Fédération pour la Recherche sur le Cerveau, France 2024 • CONICET, Argentina 2017, 2019–2024 <p>Ph.D. Theses Evaluated (external examiner)</p> <hr/> <ul style="list-style-type: none"> • María Laura Noguera — Medicine, Universidad Católica de Cuyo 2025 • Raúl González Gómez — Neuroscience, Adolfo Ibáñez University, Chile 2024 • Agustina Legaz — Psychology, UNC 2024 • Fabricio Baglivo — Engineering, UBA 2024 • Marcos Pietto — Psychology, UNC 2020 • Noelia Calvo — Psychology, UNC 2019 • Débora Mola — Psychology, UNC 2019 • Soledad Picco — Biology, UBA 2018 • Santiago Redondo — Psychology, UNC 2018 • Lucas Sedeño — Medicine, Favaloro University 2018 • María González Gadea — Neuroscience, UNC 2015 <p>Also evaluated >20 M.Sc. theses at UNC, UBA, and Universidad Favaloro.</p>
TEACHING	<p>Introduction to Cognitive Science Practices 2019–2024</p> <p><i>Psychology School, UNC, Argentina</i></p>

A Practical Introduction to Cognitive Science (Postgraduate)

2023

Psychology School, UNC, Argentina

Biological Systems (Assistant Professor, Electronic Engineering Program) 2005–2018

Engineering School, Universidad de Buenos Aires

SELECTED TALKS

- **Invited talk**, Behavioral Neuroscience and Behavioral Disorders School, Montevideo, Uruguay 2024
- **Invited talk**, Workshop of Sleep, Dreams, and Consciousness, Buenos Aires, Argentina 2023
- **Invited talk**, Applied Math Institute (IMAL), Santa Fe, Argentina 2019
- **Invited talk**, Conference *Mind, Society and Behavior*, CONICET, Buenos Aires 2018
- **Invited talk**, 2nd Latin American Brain Mapping Network Meeting, Buenos Aires 2017
- **Invited talk**, International Symposium INECO “New tendencies in neurodev. and cognition”, Buenos Aires 2015
- **Invited talk**, Conference “Brain Dynamics in the Primate Brain”, NeuroSpin, Saclay, France 2015
- **Invited talk**, First Theory-Cognitive Workshop, European Institute for Theoretical Neuroscience, Paris 2014

SERVICE

- **Member of the Scientific Committee**, 29th Annual Meeting of the Association for the Scientific Study of Consciousness (ASSC), Chile 2025–2026
- **Member of the Board of Directors**, Instituto de Investigaciones Psicológicas – CONICET 2025
- **Member of the Ethics Committee**, Instituto de Investigaciones Psicológicas – CONICET 2021–2024