



Emilie Cardon

RESEARCHER



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ABOUT ME

As a musician, I became fascinated by the way we listen. A degree in neuroscience later gave me the opportunity to analyze how our brain interprets the soundscape around us. Currently, I am researching how the brain can create a phantom sound: the phenomenon of tinnitus. I consider myself to be a lifelong student with a chronic surplus of interests.

CORE COMPETENCES

COMMUNICATION

Whether in English or Dutch, spoken or written, I love to communicate openly and clearly. I particularly enjoy sharing research findings with a broader audience.

DATA ANALYSIS

I could survive on a diet of data. I have respect for the humble t-test, but I am also fascinated by machine learning. R and Matlab hold few secrets for me.

CREATIVITY

To fully understand my data, I try to approach them with an open mind. I enjoy presenting research findings in a creative, sometimes even artistic manner.

Professional experience

UNIVERSITY OF ANTWERP
may 2022 to date

Postdoctoral researcher

I perform state-of-the-art research into tinnitus mechanisms and novel treatments. Additionally, I provide support for running studies in our research group, mainly concerning data analysis and dissemination.

UNIVERSITY OF ANTWERP
april 2023 to date

Science Communication officer

I support and organize several events within the Science Communication team, including outreach events, science festivals and STEM workshops for children and teenagers.

UNIVERSITY OF ANTWERP
2018 - 2022

PhD researcher

I performed a large clinical trial on a novel treatment for tinnitus. During this research, I also gathered new insights into the underlying neural mechanisms of tinnitus.

Education

UNIVERSITY OF ANTWERP
2018 - 2022

PhD in Medical Sciences

I defended my PhD thesis 'Exploring the neural activity underlying tinnitus perception' on May 20, 2022. During this trajectory, I also successfully completed the Doctoral School of the University of Antwerp.

UNIVERSITY OF ANTWERP
2016 - 2018

Master in Biomedical Sciences

Summa cum laude

Major: Neurosciences

KU LEUVEN
2013 - 2016

Bachelor in Biomedical Sciences

Magna cum laude

LUCA SCHOOL OF ARTS
2010 - 2014

Bachelor in Music

Magna cum laude

Major: Piano

KU LEUVEN
2012 - 2013

Master in Musicology

Magna cum laude

KU LEUVEN
2009 - 2012

Bachelor in Musicology

Magna cum laude



RELEVANT EXPERIENCE (ON A VOLUNTARY BASIS)

TUTORATE PROJECT

During both my master's studies and my doctoral program, I served as a tutor within this project at the University of Antwerp. I guided small groups of at-risk students through their math coursework and tried to inspire them to take the step towards higher education.

ORGANIZATION TINNITUS WEEK

In response to the International Tinnitus Week, my colleagues and I organized a Flemish tinnitus week in 2023 and 2024. We hosted an information evening for patients, conducted several social media takeovers, and provided blog posts and short videos about the latest tinnitus research.

HOBBIES

MUSIC

I still play the piano and regularly attend gigs and concerts.

HIKING

On holidays, I like to escape towards nature with a tent and hiking boots.

Outreach & communication

BOOK 2024

'Het buigzame brein'

In this popular science book, I zoom in on the science behind neuroplasticity. I try to give a broad audience insight into how our brains continuously balance between resilience and vulnerability.

ATLAS 2022

Television appearance

I was a guest on this TV program on the Dutch channel NPO2. I was interviewed regarding the introduction of new noise standards and regulation in the Netherlands.

NIEUWE FEITEN 2022

Radio interview

I was interviewed about my research showing that tinnitus is a problem of the brain, rather than the ears.

PhD CUP 2022

Silver microphone

With my 3-minute pitch on how we can detect tinnitus in the brain, I came in second place in this Flemish competition for science communication.

EOS 2022

'Tinnitus betrapt in het brein'

In this popular science magazine, I had the opportunity to describe in more detail how my research succeeded in detecting tinnitus in the brain.

Onderwijstaken

THESIS SUPERVISION

PhD thesis Lana Biot

University of Antwerp
PhD in Medical Sciences, 2022 to date

Master theses

Lauren Van Hoof, University of Antwerp
Master in Biomedical Sciences, 2020-2021

Wout Claeys, Anton Geukens,
Sammy Gutfreund, University of Antwerp
Master in Medicine, 2020-2022

GUEST LECTURES

Bachelor in Medicine

'Scientific research in medical sciences', 2021-2024

Postgraduate in Medicine

'Subjective tinnitus assessment and treatment in clinical practice', 2020 & 2022

Master in Biomedical Sciences

'EEG as an objective tool to assess the auditory pathway', 2022-2024

Master in Rehabilitation Sciences

'Neuromodulatory techniques in tinnitus', 2022

Publications (first author)

Cardon E, Jacquemin L, Vermeersch H, Joossen I, Moyaert J, Mertens G, Vanderveken OM, Lammers MJW, Van de Heyning P, Van Rompaey V, Gilles A (2022) Dual-site transcranial direct current stimulation to treat tinnitus: a randomized controlled trial. *Brain* 145 (12): 4222-4231.

This paper is the culmination of my doctoral research and describes the results of a large-scale clinical trial that my colleagues and I worked on for four years.

Cardon E, Jacquemin L, Schecklmann M, Langguth B, Mertens G, Vanderveken OM, Lammers MJW, Van de Heyning P, Van Rompaey V, Gilles A (2022) Random forest classification to predict response to high-definition transcranial direct current stimulation for tinnitus relief. *Ear & Hearing* 43 (6): 1816-1823.

Cardon E & Michiels S, Gilles A, Goedhart H, Vesala M, Van Rompaey V, Van de Heyning P, Schlee W (2022) The Rapid Screening for Somatosensory Tinnitus Tool (RaSST): A data-driven decision tree based on specific diagnostic criteria. *Ear & Hearing* 43 (5): 1466-1471.

Cardon E, Vermeersch H, Joossen I, Jacquemin L, Mertens G, Vanderveken OM, Lammers MJW, Van de Heyning P, Van Rompaey V, Gilles A (2022) Cortical auditory evoked potentials, brain signal variability and cognition as biomarkers to detect the presence of chronic tinnitus. *Hearing Research* 420: 108489.

In this publication, I developed a model capable of detecting tinnitus in the brain. This model can now be used to investigate mechanisms of tinnitus onset and evolution.

Cardon E, Joossen I, Vermeersch H, Jacquemin L, Mertens G, Vanderveken OM, Topsakal V, Van de Heyning P, Van Rompaey V, Gilles A (2020) Systematic review and meta-analysis of late auditory evoked potentials as a candidate biomarker in the assessment of tinnitus. *PLoS One* 15 (12): 1-20.

Cardon E & Van der Wal A & Luyten T, Jacquemin L, Vanderveken OM, Topsakal V, Van de Heyning P, De Hertogh W, Van Looveren N, Van Rompaey V, Michiels S, Gilles A (2020) Sex differences in the response to different tinnitus treatment. *Frontiers in Neuroscience* 14: 1-9.

Cardon E & Jacquemin L, Mertens G, Van de Heyning P, Vanderveken OM, Topsakal V, De Hertogh W, Michiels S, Van Rompaey V, Gilles A (2019) Cognitive performance in chronic tinnitus patients: a cross-sectional study using the RBANS-H. *Otology & Neurotology* 40 (9): 876-882.

Cardon E, Van Rompaey V, Jacquemin L, Mertens G, Vermeersch H, Joossen I, Beyers J, Vanderveken OM, Van de Heyning P, Topsakal V, Gilles A (2019) Sequential dual-site High-Definition transcranial Direct Current Stimulation (HD-tDCS) treatment in chronic subjective tinnitus: study protocol of a double-blind, randomized, placebo-controlled trial. *Trials* 20: 1-10.

Full list of publications: [ORCID.org/0000-0002-2105-5989](https://orcid.org/0000-0002-2105-5989)

Awards

Tinnitus Research Initiative Conference, 6-9/06/2023, Dublin, Ireland: Best Oral Presentation Award.

BeNe Brain Stimulation Symposium, 9/11/2022, Hasselt, Belgium: Best Poster Award.

Flemish PhD Cup, 18/10/2022, Antwerp, Belgium: Silver microphone.

PRESS>SPEAK presentation competition, 19/03/2021, Antwerp, Belgium: finalist.

Tinnitus Research Initiative Conference, 17-19/05/2019, Taipei, Taiwan: Best Oral Presentation Award.

Oral presentations (selection)

Tinnitus Research Initiative Conference, 10-12/06/2024, Vancouver, Canada
'P300 latency correlates with subjective tinnitus on a between-subject and within-subject basis' and 'Tinnitus suppression by means of cochlear implantation: does it affect cognition?'

Tinnitus Research Initiative Conference, 6-9/06/2023, Dublin, Ireland
'Transcranial direct current stimulation to treat tinnitus: Results from a randomized controlled trial and future perspectives'

World Congress of Audiology, 10-13/04/2022, Warschau, Polen
'High-definition transcranial direct current stimulation does not decrease tinnitus severity: Results from a double-blind randomized controlled trial'

Virtual Conference on Computational Audiology, 25/06/2021 (online)
'A data-driven decision tree for diagnosing somatosensory tinnitus'

Spring Symposium of the Royal Belgian Society of Oto-rhino-laryngology, 6/03/2021 (online)
'Effects of hyperbaric oxygen therapy on acute hearing loss and associated tinnitus'

Virtual conference of the audiological societies of the Netherlands (NVA) and Belgium (B-Audio), 20/11/2020 (online)
'Late auditory evoked potentials in chronic subjective tinnitus patients: A systematic review and meta-analysis'

Virtual Conference on Computational Audiology, 19/06/2020 (online)
'Random forest classification to predict response to high-definition transcranial direct current stimulation (HD-tDCS) therapy for tinnitus'

Tinnitus Research Initiative Conference, 17-19/05/2019, Taipei, Taiwan
'Assessing cognitive performance in tinnitus patients using the RBANS-H'

Broadening training

COMMUNICATION	<div>●</div> <div>Let's Talk Science, summer school for science communication ChatGPT as creative partner for science communication (2023) Science for children: a perfect match (2021) Visual design of scientific presentations (2021) Present to activate (2020) Infographics: visualize your research (Baryon) (2020) Media school of the Flemish PhD Cup (2022) Interview training, camera and performance training Popular-scientific writing Presentation training</div>
STATISTICS AND DATA ANALYSIS	<div>●</div> <div>FLAMES, Flander's training network for methodology and statistics Bayesian analysis (2021) Graphics in R (2021) Meta-analysis (2019) Introduction to online questionnaires with QUALTRICS (2019) REAL workshop on EMA (ecological momentary assessment), KU Leuven (2023)</div>