

CURRICULUM VITAE



PERSONAL INFORMATION

First and Last Name

Davide Albertini

Date and Place of Birth

18/07/1993 – Reggio Emilia (RE), Italy

Office Phone

-

Office Address

Via Volturmo 39/E, Parma (PR), Italy

Email

davide.albertini@unipr.it

Website

www.boninilab.unipr.it

Scholar Profile

<https://scholar.google.com/citations?user=hnb-hd8AAAAJ&hl=it&oi=ao>

Academic seniority: 3 years post-PhD

Bibliometric indices (Scopus)

10 authored documents: 60% as main and corresponding author (20% first, 30% co-first, and 10% as last author) and 40% as co-author. H-index: 4. Citations: 73.

Measures of impact: 50% (n=3) of the documents in the top 25% most cited documents worldwide.

Current Position

Fixed-term Researcher in Psychobiology

Institutional Roles

Researcher representative at the council of the Department of Medicine and Surgery

EDUCATION

2018 - 2022

PhD in Neuroscience, University of Modena and Reggio Emilia

2017

Master Degree in Physics, summa cum laude, University of Parma

2015

Bachelor Degree in Physics, 107/110, University of Parma

PREVIOUS POSITIONS

2023 to date

Fixed-term Researcher, University of Parma

2022

Post-doc at the National Research Council of Italy

2018

Scholarship at the University of Parma

RECOGNITIONS & AWARDS

- 2025 Travel Award of the Italian Society for Neuroscience (SINS)
- 2021 [Interview by Nature Italy](#)
- 2021 Young Investigator Award of the European Brain and Behaviour Society (EBBS)

DIRECTION OF FUNDED RESEARCH PROJECTS

- 2023 € 11.750 – Bando di Ateneo per la Ricerca (University of Parma) “The coding of spontaneous walking in monkey motor cortex”. Principal Investigator.

Main Participation in Funded Research Projects

- 2023 – to date National Recovery Fund Project MNESYS (PE0000006) – A Multiscale integrated approach to the study of the nervous system in health and disease. PI Prof. Luca Bonini.
- 2021 – to date ERC Consolidator Grant (101002704 - Emactive). PI Prof. Luca Bonini.
- 2017 - 2021 ERC Starting Grant (678307 - Wireless). PI Prof. Luca Bonini.

SUPERVISION OF STUDENTS, PHD CANDIDATES, AND POST-DOCS

- 2021 to date 8 undergraduate Master Degree students in Psychology for the preparation and defense of their thesis.

NATIONAL & INTERNATIONAL SCIENTIFIC COLLABORATIONS

- 2022 to date Dr Pietro Avanzini, Neuroscience Institute of the National Research Council of Italy.
2 co-authored publications.
- 2021 to date Prof. Silvestro Micera and Alberto Mazzoni, Sant’Anna School of Advanced Studies in Pisa (Italy).
1 co-authored publication.

TEACHING

- 2025 to date Professor of Neural Bases of Sensorimotor and Sociocognitive Functions in the Bachelor's Degree Program in Psychology at the University of Parma.
- 2024 to date Professor of Principles and Techniques of Neural Signal Analysis in the Master's Degree Program in Psychobiology and Cognitive Neuroscience at the University of Parma.
- 2024 to date Professor of Computer Skills and Bibliographic Research in the Bachelor's Degree Program in Psychology at the University of Parma.

MEMBERSHIP IN SCIENTIFIC SOCIETIES

2025 to date

Society for the Neural Control of Movement (NCM)

2023 to date

Italian Society for Neuroscience (SINS). From 2023 to 2024, member of the SINS Young Committee.

2019 - 2023

Society for Neuroscience (SfN)

EDITORIAL AND REVIEWING ACTIVITIES

Reviewer for various indexed international journals (alphabetical order)

1. Cell Reports
2. eLife
3. European Journal of Neuroscience
4. Frontiers in Psychology
5. NeuroImage
6. Scientific Reports

SELECTED INVITED LECTURES

September 17-19, 2025

“Intracranial responses to tactile stimulations during sleep”. National Congress of the Italian Society of Psychobiology and Cognitive Neuroscience, Verona, Italy.

September 10-13, 2025

“Neural correlates of walking and reaching in monkey premotor cortex”. National Congress of the Italian Society for Neuroscience, Pisa, Italy.

February 26, 2025

“Neuroethology of natural actions in freely moving monkeys”. University of Bologna, Italy.

November 9-11, 2023

“Neural correlates of tactile awareness and the effect of overt report on somatosensory processing in sEEG-recorded patients”. National Congress of the Italian Society of Psychobiology and Cognitive Neuroscience, Siena, Italy.

September 14-17, 2023

“Visuo-tactile place fields of ventral premotor neurons in freely moving monkeys”. National Congress of the Italian Society for Neuroscience, Turin, Italy.

September 4-7, 2021

“Largely shared neural code for observed biological and nonbiological movements but not executed actions in monkey premotor cortex”. 49th Congress of the European Brain and Behaviour Society, Lausanne, Switzerland.

September 25-29, 2019

“Connectional gradients underlie functional transitions in monkey supplementary motor area”. Brain and Behavioral Evolution in Primates, Erice, Sicily, Italy.

CO-AUTHOR/PRESENTER OF POSTER IN INTERNATIONAL CONFERENCES

2019 to date

Albertini D, Sini R, Tili F, Lanzarini F, Maranesi M, Bonini L. Neural correlates of walking and reaching in the monkey lateral frontal cortex, Annual Meeting of the Society for the Neural Control of Movement, Panama (Panama), 28 April - 2 May 2025;

Albertini D, Del Vecchio M, Sartori I, Pigorini A, Talami F, Zauli FM, Sarasso S, Mikulan EP, Massimini M, Avanzini P. Unravelling the neural dynamics of human tactile awareness. inTRACE Meeting, Parma (IT), 1-4 April 2025;

Albertini D, Lanzarini F, Maranesi M, Rondoni EH, Lanzilotto M, Micera S,

Mazzoni A, Bonini L. Neuroethology of natural actions in freely moving monkeys, ICBPR Summer School, Shanghai (PRC), 9-15 September 2024;

Albertini D, Lanzarini F, Maranesi M, Rondoni EH, Lanzilotto M, Micera S, Mazzoni A, Bonini L. Neuroethology of natural actions in freely moving monkeys, MNESYS Meeting, Parma (IT), 8 April 2024;

Albertini D, Lanzarini F, Maranesi M, Rondoni EH, Lanzilotto M, Mazzoni A, Bonini L. Premotor coding of natural behaviors in freely moving monkeys, SFN Annual Meeting, Washington DC (US), 11-15 November 2023;

Albertini D, Lanzarini F, Maranesi M, Bonini L. Visuo-tactile place fields of macaques' ventral premotor neurons, Comparative neurobiology of higher cognitive functions, Erice, Sicily (IT), 9-14 September 2022;

Albertini D, Lanzilotto M, Maranesi M, Bonini L. Largely shared neural codes for biological and nonbiological observed movements but not for executed actions in monkey premotor areas, SFN Annual Meeting, Virtual, 8-11 November 2021;

Albertini D, Gerbella M, Lanzilotto M, Livi A, Maranesi M, Ferroni CG, Bonini L. Connectional gradients underlie functional transitions in monkey supplementary motor area, SFN Annual Meeting, Chicago (US), 19-23 October 2019;

Albertini D, Gerbella M, Lanzilotto M, Livi A, Maranesi M, Ferroni CG, Bonini L. Connectional gradients underlie functional transitions in monkey supplementary motor area, FEPS and SIF Joint meeting, Bologna (IT), 10-13 September 2019;

Albertini D, Gerbella M, Lanzilotto M, Livi A, Maranesi M, Ferroni CG, Bonini L. Local neural population dynamics relies on specific connectivity patterns in monkey pre-supplementary motor area, PhD National Meeting 2019, Naples (IT), 1st March 2019.

PUBLICATIONS – INTERNATIONAL JOURNAL ARTICLES

2025 Giorgi A. Bonomi E. Salemi E. **Albertini D**. Zauli F.M. Mikulan E.P. Pigorini A. Avanzini P. Del Vecchio M. Task Relevance Modulates Somatosensory Awareness Depending on Stimulus Intensity. *Eur J Neurosci*. 2025 Sep;62(6):e70262

2025 Tili F. Maranesi M. Lanzilotto M. Ferroni C.G. Livi A. Bonini L. **Albertini D**. (2025). Mirror Neurons in Monkey Frontal and Parietal Areas. *Scientific Data* 2025 Jun 14;12(1):1005.

2025 **Albertini D**. Del Vecchio M. Sartori I. Pigorini A. Talami F. Zauli FM. Sarasso S. Mikulan EP. Massimini M. Avanzini P. Conscious tactile perception entails distinct neural dynamics within somatosensory areas. *Current Biology*. 2025 Jun 9;35(11):2583-2596.e3

2025 Lanzarini F.* Maranesi M.* Rondoni E.H.* **Albertini A**.* Ferretti E. Lanzilotto M. Micera S. Mazzoni A. Bonini L. (2025). Neuroetholgy of natural actions in freely moving monkeys. *Science* 387(6730):214-220. *co-first

2024 Del Vecchio M. Bontemps B. Lance F. Gannerie A. Sipp F. **Albertini D**. Cassani CM. Chatard B. Dupin M. Lachaux JP. Introducing HiBoP: a Unity-based visualization software for large iEEG datasets. *J Neurosci Methods*. 2024 Sep;409:110179.

2024 Rondoni E.H. Pizzinga M. Lanzarini F. Maranesi M. **Albertini D**. Bonini L. Russo E. Mazzoni A. (2024). Unsupervised identification of stereotypical premotor firing patterns for the decoding of hand and mouth movements. *IEEE*

Workshop on Complexity in Engineering, COMPENG 2024.

2023

Rondoni E.H. Pizzinga M. Lanzarini F. Maranesi M. **Albertini D.** Bonini L. Mazzoni A. (2023). K-medoid clustering of premotor firing patterns supports fine decoding of macaque reach-and-grasp. *Convegno Nazionale di Bioingegneria*, 2023.

2021

Albertini D. Lanzilotto M. Maranesi M. Bonini L. (2021). Largely shared neural codes for biological and nonbiological observed movements but not for executed actions in monkey premotor areas. *J Neurophysiol.* 126(3):906-912.

2021

Ferroni C.G*. **Albertini D***. Lanzilotto M. Livi A. Maranesi M. Bonini L. (2021). Local and system mechanisms for action execution and observation in parietal and premotor cortices. *Curr Biol* S0960-9822(21)00547-9. *co-first

2020

Albertini D*. Gerbella M*. Lanzilotto M. Livi A. Maranesi M. Ferroni C.G. Bonini L. (2020). Connectional gradients underlie functional transitions in monkey pre-supplementary motor area. *Progress in neurobiology* 184; 101699.

RESEARCH ACHIEVEMENT AND FUTURE DIRECTIONS

Since my PhD, my research has focused on the neural mechanisms underlying action perception and execution, as well as the cortical dynamics supporting conscious tactile perception. My scientific trajectory integrates neurophysiology, computational neuroscience, and neuroethology, combining single-neuron recordings in non-human primates with human intracranial electrophysiology.

Early research (2018–2022) investigated the functional organization of premotor areas during action execution and observation in macaques. My first studies demonstrated that rostro-caudal gradients of connectivity in the pre-supplementary motor area (pre-SMA) explain transitions between self- and other-related action responses (*Albertini et al, Progress in Neurobiology, 2019*). Further work revealed that in the ventral premotor cortex, neuronal activity predicts the onset of observed actions and that mirror neurons are predominantly inhibitory interneurons (*Ferroni et al, Current Biology, 2021*). We later showed that neural responses to observed biological and non-biological movements share a common representational code, distinct from that used during action execution (*Albertini et al, Journal of Neurophysiology, 2021*). These findings reshaped the traditional understanding of the action observation network (AON) and led to international recognition, including the Young Investigator Award from the European Brain and Behaviour Society (2021).

After completing my PhD in Neuroscience with honors in 2022, I joined a pioneering wireless neurophysiology project enabling single-neuron recordings in freely moving primates. This groundbreaking work (*Lanzarini et al, Science, 2025*), demonstrated that the premotor cortex encodes whole-body movements (e.g., walking, climbing, yawning) and that even hand-grasp representations are strongly modulated by posture—a paradigm shift in the study of cortical motor control. As PI of a university-funded project (“The coding of spontaneous walking in monkey motor cortex”, 2023), I am extending this line toward understanding how cortical mechanisms for reaching evolved from locomotor control, with promising preliminary results presented at the Society for the Neural Control of Movement (2025) and SINS 2025, where I received the Travel Grant Award.

In a parallel research axis, initiated during a post-doc at the CNR Institute of Neuroscience, I study the neural basis of conscious tactile perception in collaboration with the Niguarda Hospital Epilepsy Center (Milan). Using intracranial recordings in epileptic patients, we showed that conscious tactile awareness depends on sustained activity within higher-order somatosensory

areas, particularly the parietal operculum, challenging prefrontal-centric theories of consciousness (*Albertini et al, Current Biology, 2025*). Complementary EEG studies (*Giorgi et al, European Journal of Neuroscience, 2025*) revealed that attention enhances tactile awareness only near perceptual threshold. Ongoing work examines how parietal opercular activity varies across wakefulness and sleep, offering a direct window into the neural correlates of consciousness.

Beyond empirical findings, I have promoted open science through publicly available datasets (including the first open mirror-neuron database, *see Tili et al, Scientific Data, 2025*) and developed computational tools such as HiBoP, an interactive platform for visualizing large-scale intracranial EEG data (*Del Vecchio et al, Journal of Neuroscience Methods, 2024*).

My current and future research aims to integrate single neuron recordings in non-human primates with whole brain recordings in human patients to unravel the neural dynamics underlying somatosensory awareness. I plan to combine:

- Large-scale single-unit recordings in primates to probe feedforward and feedback interactions between somatosensory regions during tactile processing;
- Intracranial recordings in humans to map cortical dynamics underlying tactile awareness;
- Possibly, single-neuron recordings in clinical patients, bridging micro- and macroscopic neural representations.

Ultimately, my goal is to elucidate how single-neuron and network-level dynamics give rise to a conscious somatosensory experience.