

Dr. Cecilia T. Herbert

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Nationality: Argentine and

British citizen

PhD in behavioral neuroscience

- Extracellular electrophysiologist with a strong programming background
- 2 peer-reviewed articles, 5 conference presentations, 13 outreach events
- Passionate about open science, training and outreach

EDUCATION AND RESEARCH EXPERIENCE

University of Buenos Aires, Physiology and Molecular Biology Department and Physics Institute of Buenos Aires (IFIBA), CONICET — *Doctoral studies*

APRIL 2016 – PRESENT, current status: dissertation defended, wrap-up work

- Thesis: Study on the neural coding of song production in oscine birds. Advisor: Dr. A. Amador, Dynamical Systems Lab.
- Adapted recording devices from rodents for use in songbirds and trained four people to establish these techniques in our lab.
- Built the experimental setups and developed the methods to record extracellularly from freely-moving songbirds for up to two months.
- Performed all stages of the recording process for 4 seasons spanning 4-6 months of experimental work with multiple animals simultaneously.
- Designed an analysis pipeline in Matlab for audio and neural signal processing to correlate information from spikes and LFP with behavior.

University of Buenos Aires — *Licenciatura in Biological Sciences (Master's degree equivalent)*

APRIL 2009 – MARCH 2016

- Thesis: An automatic method for the identification of significant motor instances in birdsong. Advisor: Dr. G. Mindlin, Dynamical Systems Lab.
- Specialized in Animal Physiology and Neuroscience.
- Emphasis in analytical subjects to complement biological core subjects.
- Performed interdisciplinary work and internships in a variety of settings.

PUBLICATIONS [List on Google Scholar](#)

2020 – [Herbert, C. T.](#), Boari, S., Mindlin, G. B., & Amador, A. “Dynamical model for the neural activity of singing *Serinus canaria*”. *Chaos* 30, 053134. <https://doi.org/10.1063/1.5145093>

2019 – Lassa Ortiz, J. N., [Herbert, C. T.](#), Mindlin, G. B., & Amador, A. “Significant instances in motor gestures of different songbird species”. *Frontiers in Physics*, 7, 142. <https://doi.org/10.3389/fphy.2019.00142>

CONFERENCE PRESENTATIONS AS FIRST AUTHOR

OCTOBER 2021 – Poster “A consolidated view of neural activity in a cortical avian nucleus supports an integrated model for birdsong production”. [C. T. Herbert](#), S. Boari, G. B. Mindlin, A. Amador, presented at the XXXVI Annual Meeting SAN 2021 held virtually.

OCTOBER 2020 – Interactive talk in English “Grouped single-unit activity in a cortical avian nucleus supports a population model of birdsong production in *Serinus canaria*”. [C. T. Herbert](#), S. Boari, G. B. Mindlin, A. Amador, presented at the Neuromatch Conference 3.0 held virtually.

OCTOBER 2020 – Poster “Grouped single-unit activity in a cortical avian nucleus supports a population model of birdsong production in *Serinus*

LANGUAGES

Spanish (native speaker)

English (bilingual, AICE diploma)

French (conversational, A2)

SKILLS

- Extracellular electrophysiology
- Microwire tetrode fabrication and microdrive assembly
- Stereotaxic surgery on small animals
- Programming for data analysis and visualization (Matlab, Python, R)
- Spike sorting (Waveclus)
- Scientific and technical reporting (Research articles, protocols, SOPs)
- Public speaking and seminar host
- Graphic design (Illustrator) and CAD modeling (FreeCAD, Fusion360)
- Organization and team coordination

SELECTED TRAINING

2021 – **Cajal NeuroKit Course:** Extracellular Electrophysiology Acquisition organised by The CAJAL Advanced Neuroscience Training Programme in partnership with Open Ephys & OEPS (1 week).

2018 – **Neural Systems and Behavior at the Marine Biological Laboratory** in Woods Hole, MA, USA (2 months).

2014 – **Undergraduate Summer Research Program at EPFL (BioRob lab)**, Lausanne, Switzerland (2 months).

- Additional training in Statistics, Machine Learning, Electronics, Care and Use of Experimental Animals.

GRANTS AND AWARDS

2016–2022 **Doctoral grant** from CONICET (National Research Council)

2021 **Meetings Support** from IBRO-LARC and the Metropolitan Fund of the City of Buenos Aires to hold the IBRO-LARC workshop on neural

canaria". [C. T. Herbert](#), S. Boari, G. B. Mindlin, A. Amador, presented at the XXXV Annual Meeting SAN 2020 held virtually.

OCTOBER 2019 - Poster "Local field potential in cortical avian nucleus supports a circular model for birdsong production". [C. T. Herbert](#), S. Boari, G. B. Mindlin, A. Amador, presented at the XXXIV Annual Meeting SAN 2019 in Villa Carlos Paz, Córdoba, Argentina.

SEPTEMBER 2017 - Poster "HVC neural activity supports a circular model for birdsong production". [C. T. Herbert](#), S. Boari, M. Belluscio, G. B. Mindlin, A. Amador, presented at the XXXII Annual Meeting SAN 2017 in Mar del Plata, Buenos Aires, Argentina.

OPEN SOURCE TOOLS DISSEMINATION

2021 - PRESENT, [Open Source Neuro Seminar Series](#) about open source tools and methods for Neuroscience in [open-neuroscience.com](#) — *Organizer, hostess*

JULY 2020 - PRESENT, [Open Source Workshops](#) — *Co-founder, organizer, trainer*

DECEMBER 2021, [Open Ephys Extracellular Electrophysiology Acquisition](#) [Cajal NeuroKit Course](#) — *Teaching assistant*

NOVEMBER 2021, [IBRO funded workshop Insights into neural signal acquisition: an open, hands-on approach](#) — *Organizer, speaker*

AUGUST 2012 - OCTOBER 2013, [Enzyme kinetics wet lab simulator](#) for the Biological Chemistry Department of the University of Buenos Aires in the UBATIC+ program — *Developer*

TEACHING AND MENTORING EXPERIENCE

MARCH 2020 - MARCH 2021, [Licenciatura student Fiamma Liz Leites](#) at the University of Buenos Aires. Advisor: Dr. Amador — *Assistant advisor*

MARCH 2016 - DECEMBER 2016, [Physiology and Molecular Biology Department](#) of the University of Buenos Aires — *Undergraduate teaching assistant*

SPEAKER AND CONFERENCES

AUGUST 2021 - Invited to [talk](#) about the Open Neuroscience project in the [IBRO-LARC/PEDECIBA Neuroscience and AI for all Virtual Associate School](#).

JULY 2021 - [Talk](#) about "Talleres Open Source" for the [reGOSH circuit](#).

MARCH 2021 - Invited to [talk](#) in an event of the [BA City Government](#) that showcased women in technology.

ADDITIONAL WORK EXPERIENCE

[Linguistic Services S.A.](#) — *Quality Department Head*

JANUARY 2009 - MARCH 2016

- Led the company to yearly update and renew its Quality Management System certification under ISO9001 and EN15038 international standards.
- Trained as an internal auditor in TÜV Rheinland Argentina.

signal acquisition.

2018 **Travel grant** from Boehringer Ingelheim Fonds and **Financial aid scholarship** sponsored by IBRO, NIH Grant for NS&B and Lola Ellis Robertson Endowed Scholarship to attend the course Neural Systems and Behavior in Woods Hole, MA, USA.

2014 **Financial aid scholarship** to participate in the Undergraduate Summer Research Program in EPFL, Lausanne, Switzerland.

2013 **Academic Merit Award** from Santander Río Universidades

PROFESSIONAL AFFILIATIONS

- Argentine Neuroscience Research Society (SAN)
- reGOSH - Latin American network of Global Open Science Hardware
- Certified Carpentries instructor
- 2021 Open Life Science cohort 4 participant (team lead)

COMMUNITY OUTREACH

2020-2021 Presented online at-home activities in the [talk](#) "How sounds look" and the Spectrogram Challenge. Engaged an audience through [social media](#) and gave live virtual talks for school students. Interview on National Radio "The voice of birds".

2019 Created the exhibit "Tuning into the melodies of the nervous system" for "Biology Week" at UBA.

2013-2016 Showcased learning and perception in different animal models in "Biology Week" and "Museum Night" at UBA.

NON-SCIENTIFIC BACKGROUND

2018 - PRESENT Principal oboe with the San Isidro Municipal Symphonic Orchestra.

2009-2021 Principal oboe with the Hurlingham Municipal Symphonic Orchestra.