

# Lic. Cecilia T. Herbert

[ceci.herbert.com.ar](http://ceci.herbert.com.ar)

herbertceci@gmail.com

📠 [cecilia-herbert-3847a877](mailto:cecilia-herbert-3847a877)

+54 9 11 5988 4083

Nationality: Argentine/British

## PhD student in experimental neuroscience

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

## EDUCATION AND RESEARCH EXPERIENCE

### University of Buenos Aires, Physiology and Molecular Biology Department and Physics Institute of Buenos Aires (IFIBA), CONICET — *PhD student*

APRIL 2016 – PRESENT, current status: dissertation submitted

- Thesis: Study on the neural coding of song production in oscine birds. Advisor: Dr. A. Amador, Dynamical Systems Lab. Link: [lsd.df.uba.ar](http://lsd.df.uba.ar)
- 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

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 2020 – 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.  
Link: [bit.ly/neuromatch3herbert](http://bit.ly/neuromatch3herbert)

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
- Scientific and technical reporting (Research articles, protocols, SOPs)
- Public speaking
- Graphic design and CAD modelling
- Organization and team coordination
- Committed to streamlining methods and quality assurance procedures
- Self starter and lifelong learner

## SELECTED TRAINING

2021 – **Cajal NeuroKit Course:** Extracellular Electrophysiology Acquisition organised by The CAJAL Advanced Neuroscience Training Programme in partnership with Open Ephys & Open Ephys Production Site

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

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

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

## GRANTS AND AWARDS

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

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.

## TEACHING EXPERIENCE AND RESOURCE DEVELOPMENT

**Open Ephys Extracellular Electrophysiology Acquisition Cajal NeuroKit Course** — *Teaching assistant* Upcoming DEC 2021

**Open Source Workshops** — *Co-founder, organizer, teacher*

JULY 2020 - PRESENT, talleresos.netlify.app

Created the organization and put together a team of students to encourage professional development and strengthen our community. We held 6 virtual practical sessions in Spanish about open source tools, reaching ~200 people. We held a week-long remote hands-on course about signal acquisition for 25 students across 8 countries in Latin America. I am participating in the **Open Life Science program** to build a community platform.

**University of Buenos Aires** — *Assistant Advisor*

MARCH 2020 - MARCH 2021, Fiamma Liz Leites. Main advisor: Dr. Amador

Trained Fiamma remotely in data analysis and visualization in Matlab for her licenciatura thesis (Master's equivalent): Study of auditory neural activity in a sensorimotor cortical nucleus in canaries.

**University of Buenos Aires, Physiology and Molecular Biology Department** — *Undergraduate Teaching Assistant*

MARCH 2016 - DECEMBER 2016

Assisted in laboratory practicals and seminars of the courses:

- Physiology of the Nervous System
- Introduction to Molecular Physiology

**University of Buenos Aires, Biological Chemistry Department** — *Developer in the UBATIC+ program*

AUGUST 2012 - OCTOBER 2013, [bit.ly/simuladorcinetica](http://bit.ly/simuladorcinetica)

Adapted an open source agent-based simulator in NetLogo into a virtual laboratory practical in Spanish about enzyme kinetics for a Biological Chemistry undergraduate course.

## 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.

2021 **Meetings Support** from IBRO-LARC and the Metropolitan Fund of the City of Buenos Aires to hold the IBRO-LARC workshop on neural 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
- Volunteer contributor and advocate for open-neuroscience.com, a database of open tools for neuroscience. Seminar series organizer and host.
- Certified Carpentries instructor

## 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.

2019 Created the exhibit "Tuning into the melodies of the nervous system" for high-school students attending "Biology Week" at UBA.

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

## NON-SCIENTIFIC BACKGROUND

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

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