

KEY COMPETENCES

Python Programing	Science Communication	Experimental design	Rodent models
Neurobiology	Calcium imaging in vitro	Time-series Analysis	Immunofluorescence
Scientific writing	Animal surgery / Stereotaxic surgery	Machine learning	Large dataset management
Scientific Illustration	Miniscope recordings	Deep Learning	Non-human EEG datasets
Computational Neuroscience	Image Analysis	Open Science	MRI analysis



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RESEARCH POSITIONS

CNRS, Institut du Génomique Fonctionnelle
Postdoctoral Fellow

Apr 2024 - Mar 2026

Director: Patrice Mollard

CNRS, Institut du Génomique Fonctionnelle
Ingénieure Biologiste en analyse des données

Sep 2023 - Apr 2024

Director: Patrice Mollard

UNAM, Cellular Physiology Neurosciences Institute, Mexico
Ph.D candidate, Visiting.

Jan 2023 - August 2023

Data analysis of electrophysiological data with population dynamics applications, machine learning/ deep learning and information theory, at Cognitive Neuroscience Lab lead by

Dr. Román Rossi Pool.

UNAM, Neurobiology Institute, Juriquilla Qro. Mexico
Ph.D. Student

Aug 2019 - Dec 2023

Thesis : "Excitability evaluation in a cortical dysplasia rodent model."

Supervisor : Luis Concha

UNAM, Neurobiology Institute, Juriquilla Qro. Mexico
Research Assistant

Jan 2018 - August 2019

Research Assistant at Brain Connectivity laboratory, lead by MD.PhD Luis Concha, in charge of the experimental and research design of one of the main projects that actually runs in the lab.

Accomplishments:

- Experimental design in rodent model.
- Data analysis and acquisition.
- Teaching post-graduate students about the same project.

Supervisor : Luis Concha

UNAM, Faculty of Sciences, Mexico City
BS. in Biology. Graduate Student

Aug 2016 - Jan 2018

Thesis : "Characterization of the cellular network of lactotrophs and thyrotrophs during the reproductive cycle in a rodent model."

Supervisor : Tatiana Fiordelisio Coll

EDUCATION	PhD in Biomedical Sciences	
	Neurobiology Institute, UNAM CAMPUS, Juriquilla. Queretaro 08/2019 - 12/2023	
	Bachelor of Science in Biology	
	Faculty of Sciences, UNAM, Mexico 08/2014 - 01/2018	
SCHOLARSHIPS & GRANTS	FRM Fondation pour la Recherche Médical - Postdoctoral Researcher	Apr 2023 - Mar-2026
	Institut de Génomique Fonctionnelle, CNRS, Montpellier France	
	GroPro travel award (poster) - Stirling UK	Aug 2024
	CONACyT Graduate Scholarship,	Aug 2019- Dec 2023
	(The Mexican National Council for Science and Technology), which fully supported my doctoral studies.	
	Scholarship to LASCON Computational Neuroscience SCHOOL, USP, Brazil	Jan 2020
	Computational Neuroscience School at Instituto de Matemática e Estatística da USP. São Paulo, Brazil.	
	Scholarship for International Research Internship, UNAM	Dec 2017 - Feb 2018
FORMATIONS AND SKILLS	Internship at Computational Neuroscience lab, Valparaíso University, Chile.	
	Internship at Computational Biology Lab, Fundación Ciencia y Vida, Santiago de Chile.	
	L'apprentissage automatique (machine learning) appliqué à l'analyse- Postdoctoral Fellow	BIOCAMPUS Jun 2025
	ib Cegos. Python Perfectionnement- Postdoctoral Fellow	May 2025
	NEUBIAS workshop in bioimage analysis at Pasteur Institute, France	May 2025
	Postdoctoral Fellow	
	Computational methods and application into segmentation and image treatment using Python	
	Formation complémentaire de spécialisation en chirurgie (Rongeurs et Lagomorphes) - CNRS	May 2024
	Postdoctoral Fellow	
	Formation Conception et réalisation de projets et procédures - CNRS	Mar 2024
	Postdoctoral Fellow	
	Neuromatch Computational Neuroscience school, online	Jul 2020
	Ph.D student.	
	LASCON (Latin American School on Computational Neuroscience), Brazil	Jan 2020
	Ph.D student.	
	Computational neuroscience methods and application to real data and models.	
	UV, University of Valparaiso. Fundacion Ciencia y Vida. Chile	Dec 2016- Feb 2017
	BS. in Biology, Internship	
	Data Analysis and neurocomputation at Computational Neuroscience Lab lead by Dr. Patricio Orio	

**PEER-
REVIEWED
PUBLICATIONS**

- **Aquiles, A.**, Fiordelisio, T., Luna-Munguia, H., & Concha, L. (2023). Altered functional connectivity and network excitability in a model of cortical dysplasia. *Scientific reports*, 13(1), 12335.
- Villaseñor, P. J., Cortés-Servín, D., Pérez-Moriél, A., **Aquiles, A.**, Luna-Munguía, H., Ramirez-Manzanares, A., ... & Concha, L. (2023). Multi-tensor diffusion abnormalities of gray matter in an animal model of cortical dysplasia. *Frontiers in Neurology*, 14, 1124282.
- Santiago-Andres Y, **Aquiles A**, Taniguchi-Ponciano K, Salame L, Guinto G, Mercado M, Fiordelisio T. Association between Intracellular Calcium Signaling and Tumor Recurrence in Human Non-Functioning Pituitary Adenomas. *Int J Mol Sci.* (2024) Apr 3;25(7):3968. doi: 10.3390/ijms25073968. PMID: 38612778; PMCID: PMC11011867.
- **Aquiles A.** & Mollard. P. Uncovering Functional Balance in Pituitary Baselines States. *Under Revision in Journal of Neuroendocrinology*.(2025).
- **Aquiles, A.**, Pinedo, L., Regalado, M., Luna-Munguia, H., Peña-Ortega, F., Concha, L., & Rossi-Pool, R. (2026). Assessing the degree of cortical dislamination through electrical pattern analysis. *iScience*, 29(6).
- **Aquiles, A.**, Aparicio Arias, J., Lafont, C., Hodson, D., Santiago-Andres, Y., Mollard, P., & Fiordelisio, T. (2026). Population geometry reveals directed coupling and transient bistability in spontaneous pituitary secretion. *bioRxiv*, 2026-04. *Under Revision in Nature Communications Physics*.
- **Aquiles, A.**, Luzzati, F. Chance and necessity: the two sides of human neocortex evolution. In preparation.

**SUPERVISION
AND MENTORING**

Olimpia Ortega-Fimbres, MSc Student Insitute of Neurobiology, Querétaro	2022-2023
Daniela Bravo-Coutiño, Bc Student Insitute of Neurobiology, Querétaro	2022-2023
Paulina Villaseñor de la Barrera, MSc Student Insitute of Neurobiology, Querétaro	2021-2023
David Cortés-Servin, MSc Student Insitute of Neurobiology, Querétaro	2020-2021

**REVIEWER
EXPERIENCE**

- Frontiers in Computational Neuroscience (Present)
- Biomarker Research (Present)

SCIENTIFIC COMMUNICATION

- Workshop for kids at spring festival in Mexico city (2018) - “I want to be an insect”. Main: Communicate the importance of insects in polinization and daily food production. **A. Aquiles** AND E. Choreño Parra.
- Workshop for teachers for the care center of children, ISSSTE in Mexico City (2020) - “Neurobiology of lies”. **A. Aquiles**, A. López-Castro, A. Díaz, D. Munguía. Main: Communicate the neural basis of lies and the evolution of them in the early human life and their repercussions in social interactions.
- Writing, structure and direction of clip “Savage brains” in Brain week at Neurobiology Institute, UNAM, diffused on FB Neurobiology Institute channel (2020). **A. Aquiles**, A. López-Castro, I. Montiel, D. Munguía, D. Saavedra. Main: Communicate the diversity of complex structure and function adaptation of brains from different species.
- Writing, and strcuture podcast episodes for science communication tansmitted via Spotify Podcast NEUROKUNI.
- Plenary talk in TALENT-LAND, Guadalajara, México, (2019) - “How to detect science fake-news in a technology era”- **A. Aquiles** AND **A. Valdéz**

ANCILLIARY ACTIVITIES

- Co-Founder of science communication students group at Neurobiology Institute **Neurokuni 2021-2022**
- Representative of graduate students in the gender equality group at the Institute of Neurobiology - **2022-2023**
- **Mentor at Neuromatch Computational Neuroscience School 2026**

LANGUAGES

Spanish - native **English**- proficient **French**- proficient **Portugues**- intermediate



REFERENCE CONTACTS

- **Patrice Mollard** (Principal Investigator at the IGF in Montpellier, France) - Worked as a postdoctoral researcher from September 2023 to March 2026. patrice.mollard@igf.cnrs.fr
- **Roman Rossi Pool** (Principal Investigator at the Physiology Institute, UNAM, Mexico) - Collaborated as part of my PhD project from January 2023 to August 2023. romanr@ifc.unam.mx
- **Luis Concha Loyola** (Principal Investigator at the Neurobiology Institute, UNAM, Mexico) - Served as a research assistant and PhD student on the project from January 2018 to September 2023. lconcha@unam.mx
- **Tatiana Fiordelisio Coll** (Principal Investigator at the Faculty of Sciences, UNAM, Mexico) - Worked as a Bachelor's student from August 2016 to January 2018. tfiorde@ciencias.unam.mx