

Sofía Fernández Lozano

PSYCHOLOGY B.A. · NEUROBIOLOGY M.S. · NEUROSCIENCES PHD CANDIDATE

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Experience

RESEARCH

McGill Journal of Medicine

PRODUCTION EDITOR

- Manage the team of production associates for the preparation of the articles' PDF and HTML galleys for their online publication.

Montreal, QC, Canada

May. 2022 - PRESENT

Neuroimaging & Surgical Technologies (NIST) Lab

PHD STUDENT RESEARCHER

- Working on developing and improving MRI tools that can improve clinical progression to Alzheimer's disease.
- Developed a Quality Control application that heavily improved the efficiency of our QC processes.

Montreal, QC, Canada

Aug. 2020 - PRESENT

Laboratorio Nacional de Imagen por Resonancia Magnética (LANIREM)

MASTER STUDENT RESEARCHER

- Moved over to the new location of the lab and continued the work of the research done in the INPRFM.
- I implemented a Machine Learning Algorithm to classify cocaine-dependence using global metrics of topology (Graph Theory Analysis).

Querétaro, Qro, México

Jul. 2019 - Jan. 2020

Laboratory of Neuroimaging, National Institute of Alcohol Abuse and Alcoholism (NIAAA)

RESEARCH VISITOR

- I learned about the technique Functional Connectivity Density Mapping (FCDM) developed by Dr. Tomasi and implemented it on my own data.
- I presented my work on the intramural seminar of the NIAAA and NIDA at the NIH.

Bethesda, MD, USA

Mar. - May. 2019

Instituto Nacional de Psiquiatría "Ramón de la Fuente Muñiz" (INPRFM)

MASTER STUDENT RESEARCHER

- I collaborated in the *ongoing clinical trial* under the supervision of Eduardo Garza, PhD.
- I administered the TMS sessions to some of the patients in the study. I cleaned the clinical databases and statistically analyzed the clinical data using R. I acquired, organized in BIDS format, preprocessed and analyzed the MRI data using network science techniques.

Ciudad de México, México

Aug. 2017 - June. 2019

Yaaj México, A.C.

RESEARCH COORDINATOR

- I coordinated a project in collaboration with United Nations Office on Drugs and Crime (UNODC) to write a guide for professionals of Mental Health against Sexual Orientation and Gender Identity Change Efforts: "*Nada que curar*".
- I was in charge with science divulgation related to sexual health, gender identity and sexual orientation in youth populations.

Ciudad de México, México

Mar. 2017 - Jul. 2019

Colegio de la Frontera Norte (COLEF)

RESEARCH INTERNSHIP

- I was an intern on the research project: Mexican parents' attitudes toward gender equality in family roles and leadership.
- I administered the questionnaires to the parents in three different middle schools and captured the data for its analysis.

Tijuana, BC, México

Feb. - Sep. 2015

CLINICAL

Interpsique

PSYCHOMETRIST

- I administered, scored, and evaluated psychological tests under the supervision of a licensed psychology doctorate.

Tijuana, BC, México

Jan. 2016 - Mar. 2017

Hospital de Salud Mental de Tijuana (HSMT)

PSYCHOLOGY INTERN

- 240 supervised clinical hours in the Inpatient Psychiatric Care Unit: Occupational and group therapy, and clinical evaluations.

Tijuana, BC, México

Dec. 2014 - Mar. 2015

Education

Montreal Neurological Institute & McGill University

PHD IN NEUROSCIENCES

- Project: MRI biomarkers in Alzheimer's disease.
- Supervisor: D. Louis Collins, PhD

Montreal, QC, Canada

IN PROGRESS

Universidad Nacional Autónoma de México (UNAM) & Instituto de Neurobiología (INB)

MASTER OF SCIENCE IN NEUROBIOLOGY; GRADUATED WITH HONORS

- Thesis: Brain Connectivity in Cocaine-addicted Patients after Repetitive Transcranial Magnetic Stimulation Treatment.
- Supervisor: Eduardo Garza-Villarreal PhD

Ciudad de México, México

Jan 2020

Courses and workshops

Neurohackademy 2019

UNIVERSITY OF WASHINGTON

Neuroimaging and Data Science summer school and hackaton.

Seattle, WA, USA

Jul. - Aug. 2019

Bayesian Modeling of Brain Imaging Data

MICHELE GUINDANI, PHD; MEXICAN ASSOCIATION OF STATISTICS

Two-day intro course about Bayesian methods in fMRI analysis

Ciudad de México, México

Sep. 2017

International Course of Neuropsychological Evaluation

JUAN-CARLOS ARANGO, PHD; SINAPSIS

Bases of application and evaluation of neuropsychological tests in cultures and languages other than those in North America and Western Europe

Mexicali, BC, México

Oct. 2015

Semester Abroad

UNIVERSIDAD DE SALAMANCA

Classes of clinical evaluation, education psychology and school counseling

Salamanca, Spain

Feb. - Jul. 2014

Honours & Grants

FELLOWSHIPS & GRANTS

2019 - SCHOLARSHIP

Ciudad de México, México

CONACYT - international (≈\$2,000)

2019 - GRANT

Ciudad de México, México

UNAM research visit grant (≈\$1,300)

2017 - FELLOWSHIP

Ciudad de México, México

CONACYT grad fellowship (≈\$13,200)

HONOURS & AWARDS

2016 - UNDERGRAD REP.

Tijuana, BC, México

Ceremony for Honor Students

2016 - HONOREE

Guadalajara, Jal., México

EGEL-CENEVAL Excellence Award

Skills & Certifications

Programming & Markup Languages

• R • Shell • Python • Javascript • \LaTeX • HTML

Languages

• Spanish (Native) • English (Fluent)

General Tools

• UNIX systems • Git • Docker • Vim • SGE

Publications and Presentations

ARTICLES AND BOOK CHAPTER

- SOFIA FERNANDEZ-LOZANO, Dadar, M., Morrison, C., Manera, A., Andrews, D., Rajabli, R., Madge, V., St-Onge, E., Shafiee, N., Livadas, A., Fonov, V., Collins, D.L., Alzheimer's Disease Neuroimaging Initiative (2022). **QRATER: a collaborative and centralized imaging quality control web-based application.** *BIORXIV*. 10.1101/2022.12.20.521204.
- Eduardo A. Garza-Villarreal, Ruth Alcalá-Lozano, SOFIA FERNANDEZ-LOZANO, Erik Morelos-Santana, Alan Dávalos, Viviana Villicaña, Sraael Alcauter, F. Xavier Castellanos, y Jorge J. Gonzalez-Olvera (2021). **Clinical and Functional Connectivity Outcomes of 5-Hz Repetitive Transcranial Magnetic Stimulation as an Add-on Treatment in Cocaine Use Disorder: A Double-Blind Randomized Controlled Trial.** *BIOLOGICAL PSYCHIATRY: COGNITIVE NEUROSCIENCE AND NEUROIMAGING*. 10.1016/j.bpsc.2021.01.003.
- Victor Pando-Naude, Sebastian Toxto, SOFIA FERNANDEZ-LOZANO, Christine E. Parsons, Sraael Alcauter and Eduardo A. Garza-Villarreal (2021). **Gray and white matter morphology in substance use disorders: a neuroimaging systematic review and meta-analysis.** *TRANSLATIONAL PSYCHIATRY*. 10.1038/s41398-020-01128-2.
- FERNÁNDEZ-LOZANO, S. (2019). **Derechos sexuales y reproductivos; reflexiones para terapeutas (Sexual and reproductive rights; reflections for therapists).** In Gómez-Lamont, M.F. & Silva-Aragón, A. (Eds.), *Terapia familiar sistémica y la comunidad LGBT+ (Systemic family therapy and LGBT community)*. Ciudad de México, México: Pax & Leed.

POSTERS

- FERNANDEZ-LOZANO, S., Dadar, M., Morrison, C., Manera, A., Fonov, V., Collins, D. L. (2022, August). *Qrater: collaborative imaging quality control tool.* Poster session presented at the **AAIC**, California, United States.
- FERNANDEZ-LOZANO, S., Dadar, M., Morrison, C., Manera, A., Fonov, V., Collins, D. L. (2022, June). *Qrater: centralized web application for image quality control.* Poster session presented at the **OHBM**, Glasgow, United Kingdom.
- Morelos-Santana, E., Garza-Villarreal, E., Alcalá-Lozano, R., Torres-Marcial, A., Villicaña-Muñoz, V., FERNÁNDEZ-LOZANO, S., Dávalos-Guzmán, A., Martínez-García, B., González-Cantú, H., Reyes-Zamorano, E., González-Olvera, J. (2019, Feb). *Effects of rTMS at 5 Hz over IDLPFC on inhibitory control and craving in cocaine dependent patients.* Poster session presented at the **BRAIN STIMULATION**, Vancouver, Canada.
- FERNÁNDEZ-LOZANO, S., Alcalá-Lozano, R., Morelos-Santana, E.D., Villicaña-Muñoz, V., González-Cantú, H., González-Olvera, J.J., Garza-Villarreal, E.A. (2018, Oct). *Análisis de teoría de grafos en redes funcionales después de un tratamiento doble ciego de EMTr en pacientes adictos a cocaína (Graph theory*

analysis on functional networks after double-blinded rTMS on cocaine-addicts). Poster session presented at the ANNUAL MEETING OF RESEARCHERS OF THE INSTITUTO NACIONAL DE PSIQUIATRÍA “RAMÓN DE LA FUENTE MUÑOZ”, Ciudad de México, México.

- FERNÁNDEZ-LOZANO, S., Alcalá-Lozano, R., Morelos-Santana, E.D., Villicaña-Muñoz, V., González-Cantú, H., González-Olvera, J.J., Garza-Villarreal, E.A. (2018, Oct). *Effects of rTMS on the small-worldness of crack-cocaine addicts’ functional connectivity networks*. Poster session presented at the XX REUNION OF NEUROIMAGE AT THE RESEARCH CENTER IN MATH (CIMAT), Guanajuato, México.

CONFERENCES AND OTHER PROCEEDINGS

Dec 2019 (CONFERENCE)	Transcranial Magnetic Stimulation: Neuromodulation techniques as neuropsychiatric treatment MONTHLY CONFERENCE; Baja California College of Psychologists	<i>Tijuana, BC, México</i>
Oct 2019 (CONFERENCE)	Classification of cocaine dependence using topology of functional connectivity networks NEUROIMAGE REUNION XXI; CIMAT (Center of research in mathematics)	<i>Guanajuato, México</i>
Aug 2019 (HACKATON)	MRIQception NEUROHACKADEMY 2019; University of Washington	<i>Seattle, WA, USA</i>
May 2019 (HACKATON)	FANI-Pack (Find All New ICDs Package) WOMEN-LED BIODATA SCIENCE HACKATON AT NIH; National Center for Biotechnology Information	<i>Bethesda, MA, USA</i>
May 2019 (CONFERENCE)	Functional connectivity network changes after rTMS treatment in cocaine addiction NIAAA & NIDA INTRAMURAL SEMINAR; National Institutes of Health	<i>Bethesda, MA, USA</i>
Nov 2018 (CONFERENCE)	[Brain connectome: studying the most complex network system] BRAIN WEEK; National High school #9 “Pedro de Alba”	<i>Ciudad de México, México</i>
Oct 2018 (CONFERENCE)	[Conversion therapy: psychology and human rights’ perspective] 2ND ENCOUNTER ABOUT SEXUALITIES AND GENDER; UNAM (National Autonomous University of Mexico)	<i>Ciudad de México, México</i>
Jun 2018 (CONVERSATORIOUM)	[The right to an identity of transgender children and adolescents] Supreme Justice Tribunal of Mexico city	<i>Ciudad de México, México</i>