

# Sofía Fernández Lozano

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

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## Education

### Montreal Neurological Institute & McGill University

PHD IN NEUROSCIENCES

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

### Universidad Autónoma de Baja California (UABC)

BACHELOR OF ARTS WITH HIGHEST HONORS IN PSYCHOLOGY

- Scholar Merit (First in class)

Tijuana, BC, México  
Dec 2015

## Experience

### RESEARCH

#### 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

## 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

- Eduardo A. Garza-Villarreal, Ruth Alcalá-Lozano, SOFIA FERNANDEZ-LOZANO, Erik Morelos-Santana, Alan Dávalos, Viviana Villicaña, Sarael 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, Sarael 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

- 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., VILICAÑA-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., VILICAÑA-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

Tijuana, BC, México

Oct 2019  
(CONFERENCE)

Classification of cocaine dependence using topology of functional connectivity networks  
NEUROIMAGE REUNION XXI; CIMAT (Center of research in mathematics)

Guanajuato, México

Aug 2019 (HACKATON)	<b>MRIQception</b> NEUROHACKADEMY 2019; University of Washington	Seattle, WA, USA
May 2019 (HACKATON)	<b>FANI-Pack (Find All New ICDs Package)</b> WOMEN-LED BIOData SCIENCE HACKATON AT NIH; National Center for Biotechnology Information	Bethesda, MA, USA
May 2019 (CONFERENCE)	<b>Functional connectivity network changes after rTMS treatment in cocaine addiction</b> NIAAA & NIDA INTRAMURAL SEMINAR; National Institutes of Health	Bethesda, MA, USA
Nov 2018 (CONFERENCE)	<b>[Brain connectome: studying the most complex network system]</b> BRAIN WEEK; National High school #9 “Pedro de Alba”	Ciudad de México, México
Oct 2018 (CONFERENCE)	<b>[Conversion therapy: psychology and human rights’ perspective]</b> 2ND ENCOUNTER ABOUT SEXUALITIES AND GENDER; UNAM (National Autonomous University of Mexico)	Ciudad de México, México
Jun 2018 (CONVERSATORIOUM)	<b>[The right to an identity of transgender children and adolescents]</b> Supreme Justice Tribunal of Mexico city	Ciudad de México, México