

RESEARCH EXPERIENCE

Graduate Research Assistant - University of Maryland, College Park Maryland, USA
Ph.D. in Neuroscience and Cognitive Science (in progress)
Department of Human Development and Quantitative Methodology
August 2024 - Present

RA - Centro de Investigación del Desarrollo en Cognición y Lenguaje CIDCL Valparaíso, CL
(Research Center for Development in Cognition and Language)
Universidad de Valparaíso - Speech Therapy School, Faculty of Medicine
FONDECYT 1230532 Project - May 2023 - July 2024
FONIS SA19I0118 Project - August 2022 - Dec 2023, in collaboration with Universidad del Desarrollo
FONDECYT 11170654 Project - December 2021- March 2022
FONDECYT 11160212 Project - March 2017 - March 2018

Research Assistant - The Brain Dynamics Lab Valparaíso - Santiago, CL
Universidad de Valparaíso - Biomedical Engineering School, Faculty of Engineering
ANILLOS ACT210053 - A collaborative research involving U. de Valparaíso, U. Concepción, and Pontificia
Universidad Católica de Chile - July 2022 - July 2024
FONDEF 16I10322 Project - 2018 - 2019

Research Assistant - Voice Production Laboratory (VPLab) Valparaíso, CL
Advanced Center for Electrical and Electronic Engineering (AC3E)
Universidad Técnica Federico Santa María. Associative Research Program Basal Project FB0008
FONDECYT 1191369 Project - 2021 - 2022
MS Student - P50 DC015446 Project NIDCD - NIH -2019-2020

EDUCATION

University of Maryland, College Park Maryland, USA
Ph.D. in Neuroscience and Cognitive Science
2024 - In progress

Universidad de Valparaíso, Faculty of Engineering Valparaíso, CL
Master's Degree in Engineering Sciences, Mention Biomedical Engineering
2018 - 2020
Thesis: Anticipatory activity predicts corollary discharge: Alteration in participants with schizophrenia. Directed by
Professor: Dr. Wael El Deredy and Professor: Dr. Pavel Prado

Universidad Santo Tomás, School of Speech-Language Pathology Viña del Mar, CL
Professional Title of Speech-Language Pathology (Maximum Distinction)
2012 - 2017
Thesis: Attribution of mental and emotional states and intentions in subjects with schizophrenia. Directed by Professor:
Dr. María Francisca Alonso/

Universidad Santo Tomás, School of Speech-Language Pathology Viña del Mar, CL
BSc of Speech-Language Pathology (Maximum Distinction)
2012 - 2016

SCHOLARSHIPS AND AWARDS

2026 Travel Award, Neurohackademy

2026 BSOS Student Dean's Research Initiative (Research Funding) - University of Maryland

2026 Travel Award, Conference on Cognition, Aging, and Speech Communication

2026 Travel Award, Association for Research in Otolaryngology (ARO) MidWinter Meeting

2025 Student/Postdoc Research Mini-Grant, Language Science Center - University of Maryland

2021 - Starts 2024 Fulbright Equal Opportunities Doctoral Scholarship ANID. Ph.D. studies in the U.S

2019 - 2020 National Master Scholarship - From National Research and Development Agency, Chile

2016 Academic Excellence Scholarship - Universidad Santo Tomás, Chile

2016 Award first place in the undergraduate ranking - Universidad Santo Tomás, Chile

TEACHING EXPERIENCE AND MENTORING EXPERIENCE

- Thesis Direction** 2021
Universidad Santo Tomás- For the professional title of Speech-Language Pathology - Four students Viña del Mar, CL
- Thesis: Validation of experimental paradigm in recognition tasks between semantic and prosodic content
- Bioengineering - Teaching Assistant** 2022
Universidad Técnica Federico Santa María Valparaíso, CL
- Professor: Pavel Prado

PUBLICATIONS

Published

- Z-Rivera, L...**, Castro, C., Cuadros., Cortés, JP., Weinstein, A., Espinoza, V., Prado, P., Zañartu, M. Neural dynamics and acoustic adaptations during the Lombard effect: evidence from EEG and dynamic causal modeling. *Sci Rep* 16, 18939 (2026). <https://doi.org/10.1038/s41598-026-49995-x>
- Figueroa-Vargas, A., Kausel, L., ... **Z-Rivera, L...**, et al. Coupling between neural oscillations and white matter integrity reveals cognitive computational profiles following COVID-19. *Sci Rep* 16, 3031 (2025). <https://doi.org/10.1038/s41598-025-33030-6>
- Castro, C., Cortés, JP., **Z-Rivera, L...**, Prado, P., Weinstein, A., Zañartu, M. Modeling voice production and self-perception in noise: Understanding the Lombard effect in non-phonotraumatic vocal hyperfunction. *J. Acoust. Soc. Am.* 156, 3772–3779 (2024). <https://doi.org/10.1121/10.0034544>
- Gomez-Lombardi, A., Gongora, b ., Prado-Gutierrez, P., Muñoz-Carvajal, P., **Z-Rivera, L...**, El-Deredy, W. The cognitive triad network - oscillation - behaviour links individual differences in EEG theta frequency with task performance and effective connectivity. *Sci Rep* 14, 21482 (2024). <https://doi.org/10.1038/s41598-024-72229-x>
- Alonso-Sánchez, M., **Z-Rivera, L.**, Otero, M., Portal, J., Cavieres, A., Alfaro-Faccio, P. Aberrant brain language network in schizophrenia: A Systematic Review of its relation to language signs beyond symptoms. *Front. Psychiatry - Schizophrenia*. Volume 15 - (2024). <https://doi.org/10.3389/fpsy.2024.1244694>
- Coronel-Oliveros. C., Medel. V., Whitaker. G., Astudillo. A., **Z- Rivera. L.**, Prado. P., El-Deredy. W., Orio. P., Weinstein. A. Elevating Understanding: Linking High-Altitude Hypoxia to Brain Aging Through EEG Functional Connectivity and Spectral Analyses. *Network Neuroscience* (2024) 8 (1): 275–292. <https://doi.org/10.1162/netn.a.00352>.
- Figueroa-Vargas, A., Gongora, B., Alonso-Sanchez, F., Ortega, A., Soto-Fernández, P., **Z-Rivera, L...**, Ramirez, S., González, F., Muñoz-Venturelli, P., Billeke, P. The effect of a cognitive training therapy based on stimulation of brain oscillations in patients with mild cognitive impairment in a Chilean sample: study protocol for a phase IIb, 2×3 mixed factorial, double-blind randomised controlled trial. *Trials* 25, 144 (2024). <https://doi.org/10.1186/s13063-024-07972-7>
- Cuadros, J., **Z-Rivera, L.**, Castro, C., Whitaker, G., Otero, M., Weinstein, A., Martínez-Montes, E., Prado ,P., Zañartu, M. DIVA Meets EEG: Model Validation Using Formant-Shift Reflex. *Applied Sciences*. 2023; 13(13):7512. <https://doi.org/10.3390/app13137512>
- Prado, P., Mejía, JA., Sainz-Ballesteros, A., Birba, A., Moguilner, S., Herzog, R., Otero, M., Cuadros, J., **Z-Rivera, L.**, O'Byrne, DF., Parra, M., Ibáñez, A. Harmonized multi-metric and multi-centric assessment of EEG source space connectivity for dementia characterization. *Alzheimer's Dement.* 2023; 15:e12455. <https://doi.org/10.1002/dad2.12455>
- Castro C*, **Z-Rivera. L***, Prado. P., Cuadros. J., Cortés. J.P., Weinstein. A., Espinoza. V., Zañartu. M. Acoustic and Neurophysiological Aspects of Lombard Effect. 2022; bioRxiv 2022.09.30.510383; doi: <https://doi.org/10.1101/2022.09.30.510383>. ***Equal Author Contribution**

Alonso Sánchez, M.F., **Zepeda Rivera, L.**, Prado Gutiérrez, P. Temporal and spatial differences in the processing of lexical incongruities: A study of event related potentials. Revista de La Facultad de Medicina. 2020; 68 (2). <https://doi.org/10.15446/revfacmed.v68n2.72762>.

EVALUATOR OF ARTICLES IN INDEXED JOURNALS

Reviewer for the article "A Study of Semantic and Phonological Verbal Fluency in Alzheimer's Disease" in the Revista Signos of Linguistic Studies at Pontificia Universidad Católica de Valparaíso, Chile.

CONFERENCE PAPERS AND SEMINARS (SELECTION OF THE LAST 5 YEARS)

Z-Rivera, Lucía*, Stone, Ciaran M*, Sajjadi, Ebtesam*, Anderson, Samira. Neural Tracking of Rapid Speech in Aging and Hearing Loss. Conference on Cognition, Aging, and Speech Communication (CASC), Washington University, St. Louis.(Poster Presentation-Poster Blitz).

***Equal Author Contribution**

Z-Rivera, Lucía*, Stone, Ciaran M*, Sajjadi, Ebtesam*, Anderson, Samira. Neural Tracking of Rapid Speech in Aging and Hearing Loss. NACS Research Day, University of Maryland. (Poster Presentation).

Z-Rivera, Lucía*, Stone, Ciaran M*, Sajjadi, Ebtesam*, Anderson, Samira. Effects of Aging and Hearing Loss on Neural Tracking of Linguistic Features in Rapid Speech. Association for Research in Otolaryngology (ARO) MidWinter Meeting, Puerto Rico. (Poster Presentation).

***Equal Author Contribution**

Z-Rivera, Lucía., Brooks, Michaela R., McCabe, Cory., Graves, William W., Purcell, Jeremy J., Bolger, Donald J. Lexical and Sublexical Overlap in Bilingual Word Recognition. Society for the Neurobiology of Language, Gallaudet University, Washington DC. (Poster Presentation).

Stone, Ciaran M*, **Z-Rivera, Lucía***, Sajjadi, Ebtesam*, Anderson, Samira. Impact of Auditory Training on Cortical Neural Tracking of Rapid Speech in Aging. Society for the Neurobiology of Language, Gallaudet University, Washington DC. (Poster Presentation).

***Equal Author Contribution**

Z-Rivera, Lucía., Rodiño, Julio., Gómez-Lombardi, Andre., El-Deredy, Wael. Brain-State dynamics in healthy aging. 11th International Brain Research Organization (IBRO) World Congress of Neuroscience in Granada, Spain on 9-13 September 2023. (Poster Presentation).

Z-Rivera, Lucía., Rodiño, Julio., Gómez-Lombardi, Andre., El-Deredy, Wael. Brain-State dynamics in healthy aging. Advanced Center for Electrical and Electronic Engineering (AC3E) Technical Conference, Valparaíso, Chile 2023. Award for the most outstanding poster presentation.

Z-Rivera, L., Astudillo, A., Rodiño, J., Gómez-Lombardi, A., Hernández, H., Araya, D., Guevara, P., El-Deredy, W. Dynamic Brain-States of spontaneous EEG in younger and older adults. Organization for Human Brain Mapping (OHBM) Annual Meeting in Glasgow, Scotland 2022. (Poster Presentation).

Castro, C., **Z-Rivera, L.**, Prado, P., Cuadros, J., Weinstein, A., Zañartu, M. Acoustic and Neurophysiological Aspects of Lombard Effect. IV Research Conference Clinical Hospital of the Universidad de Chile (HCUCH) - Health and Engineering innovative solutions at HCUCH, Santiago, Chile 2022. (Poster Presentation)

Z-Rivera, L., Castro, C., Prado, P., Cuadros, J., Weinstein, A., Zañartu, M. Acoustic and Neurophysiological Aspects of Lombard Effect. Advanced Center for Electrical and Electronic Engineering (AC3E) Technical Conference, Valparaíso, Chile 2022. (Poster Presentation)

Astudillo, A. **Zepeda-Rivera, L.**, Araya, D., Hernandez, H., Trujillo-Barreto, N. Electroencephalography (EEG) Data Preprocessing Pipeline for Online Workshop on Hidden Semi-Markov Model (HsMM) Modeling, 2021.(Oral Presentation)

Astudillo, A. **Zepeda-Rivera, L.**, Araya, D., Hernandez, H., Trujillo-Barreto. Brain States Dynamics Tutorial, Workshop online 2021. (Organizing Committee Participation).

Participation as a student in the IEEE SPS Summer School on Biomedical Signal and Image Processing in Chile, 2020.

SKILLS

Programming Languages: Matlab, Python, R.

Tools: Psychtoolbox, EEGLAB, SPM, Brain Vision Analyzer, E-prime 3.0

Devices: EEG - Biosemi Active Two, tACS - Neuroelectris.

INTERESTS

Bilingual language processing, Neuroscience, Neurolinguistics, Human Development, Aging, Voice Production, Cognitive Processing in Psychiatric Disorders, Natural Language Processing, Electroencephalography Studies.