jaguirrechavez@ucsd.edu

Jerjes Aguirre-Chavez

+1 (619) 375 7052

Education

UNIVERSITY OF CALIFORNIA, SAN DIEGO **09 2024 — 09 2029 [Expected]**
Ph.D. in Data Science *San Diego, California, USA*

- GPA: 4.0/4.0.
- Research interests include responsible machine learning, data mining, and the application of artificial intelligence in clinical decision-making and scientific discovery.

UNIVERSITY OF CALIFORNIA, SAN DIEGO **09 2024 — 09 2025 [Expected]**
M.Sc. in Data Science *San Diego, California, USA*

- GPA: 4.0/4.0.
- Relevant coursework: Machine Learning, Algorithms for Data Science, Linear Algebra, Probability and Statistics.

TECNOLÓGICO DE MONTERREY **08 2018 — 12 2022**
B.Sc. in Engineering Physics *Monterrey, Nuevo Leon, Mexico*

- GPA: 97.42/100 (Summa Cum Laude).
- Relevant coursework included Mathematical Methods I & II, Classical Mechanics, Statistical Mechanics, Quantum Mechanics I, Computational Physics I & II, and Solid State Physics.

Research Experience

GRADUATE STUDENT RESEARCHER / GENERATIVE MODELS FOR CLINICAL TIME SERIES **01 2025 — Present**
University of California, San Diego. Advisor: Professor Benjamin Smarr *San Diego, CA*

- Studying the use of generative AI for understanding the physiological features and their importance for recovery of COVID and long COVID.

GRADUATE STUDENT RESEARCHER / SCIENTIFIC DISCOVERY WITH LLMS **09 2024 — 12 2024**
University of California, San Diego. Advisor: Professor Bradley Voytek *San Diego, CA*

- Utilized Neuromaps and NeuroQuery to integrate brain feature maps with semantic term associations, enabling meta-analytic insights into neuroscience data.
- Processed voxel-level data from Neuromaps and linked it to scientific text corpora, establishing region-specific relationships between brain features and published research.
- Explored predictive modeling strategies to map semantic terms onto brain regions, contributing to the development of a scientific discovery tool for neuroscience.

DATA SCIENCE RESEARCHER / CLIMATE CHANGE **01 2023 — 08 2024**
ClimateAi - R&D. Advisor: Professor Carlos Hoyos, Professor Arik Tashie *San Francisco, CA (remote)*

- Post-processed CMIP datasets for climate analysis.
- Developed an infection rate dataset based on Gamma functions and temperature data.
- Implemented Principal Component Analysis (PCA) on sea surface temperature data to study correlations with precipitation in selected regions.

RESEARCH ASSISTANT / WATER AVAILABILITY **08 2022 — 12 2022**
Tecnologico de Monterrey. Advisor: Professor Hector Medel *Monterrey, Nuevo Leon, Mexico*

- Investigated climate and social factors affecting water availability.
- Developed data augmentation strategies for enhancing climate data analysis.
- Employed data engineering techniques on climate datasets.

RESEARCH TRAINEE / FETAL BRAIN AGE PREDICTION USING DEEP LEARNING NETWORKS **08 2021 — 08 2022**
FNNDSC, Harvard Medical School. Advisor: Professor Kiho Im *Boston, MA*

- Processed raw Magnetic Resonance Imaging (MRI) data, including reconstruction and segmentation of fetal brains.
- Designed a deep learning-based fetal brain age prediction network using Convolutional Neural Networks (CNNs).
- Integrated an image quality assessment tool into our in-house data pipeline.
- Conducted statistical analysis for clinical trial evaluations.

Publications

Peer Reviewed Journal Articles

- Yun, H., Lee, H., You, S., Lee, J., **Aguirre-Chavez, J.**, Vasung, L., Lee, H., Tarui, T., Feldman, H., Grant, P., Im, K. (In Press). "Deviated Brain Age Prediction in Fetuses with Cerebral Ventriculomegaly". Radiology: Artificial Intelligence

Conference Presentations

- Yun, H., **Aguirre-Chavez, J.**, Nagaraj, U., Feldman, H., Ou, X., Acheson, A., Lin, W., Grewen, K., Jones, H., Grant, P., Merhar, S., Im, K. (2023, July 22-26). "Altered brain development in fetuses with prenatal opioid exposure" [Conference presentation]. Organization for Human Brain Mapping, Montreal, Canada.
- Yun, H., Lee, H., Lee, J., **Aguirre-Chavez, J.**, Vasung, L., Rollins, C., Ortinau, C., Grant, P., Im, K. (2022, September 5-6). "Brain age prediction in fetuses with ventriculomegaly using a deep learning network with fetal brain MRI" [Conference presentation]. Fetal, Infant, and Toddler Neuroimaging Group, Paris, France. FIT'NG abstracts 2022 [p. 41]

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Skills

Tools and Languages	GCP, AWS, Freesurfer, Python, Scala, Julia, SQL, Docker, Git, MATLAB, Mathematica, LaTeX,
Relevant Libraries	Xarray, Dask, Tensorflow, Keras, Numpy, Pandas
Research	AI in healthcare, Neuroscience, Climate Science, Mathematical modelling, Deep learning
Communication	Spanish (native), English (C1 - TOEFL IBT 112), French (DELF B1)

Awards

HONORABLE MENTION OF ACADEMIC EXCELLENCE **12 2022**
Tecnologico de Monterrey *Monterrey, Nuevo Leon, Mexico*

- Received an Honorable Mention for Academic Excellence, awarded to the top 5% of graduating students in each cohort. This distinction is the highest honor conferred during the graduation ceremony.

TOP GPA STUDENTS **12 2021**
Tecnologico de Monterrey *Monterrey, Nuevo Leon, Mexico*

- Awarded to students with the top 2% highest GPA in the School of Engineering and Sciences.

OUTSTANDING STUDENTS **12 2021**
Tecnologico de Monterrey *Monterrey, Nuevo Leon, Mexico*

- Recognized as one of the most distinguished students in extracurricular activities within the School of Engineering and Sciences.

ACADEMIC TALENT SCHOLARSHIP **08 2018 - 12 2022**
Tecnologico de Monterrey *Monterrey, Nuevo Leon, Mexico*

- Awarded a merit-based tuition scholarship for B.Sc. in Engineering Physics studies at Tec de Monterrey.

Technical Experience

DATA SCIENTIST II **01 2023 — Present**
ClimateAi *San Francisco, CA (remote)*

- Developed object-oriented algorithms for post-processing climate datasets.
- Managed and reviewed source code modifications using Git.
- Utilized Dask and Xarray for efficient chunking and organization of datasets, optimizing data access.

SOFTWARE ENGINEER / PLATFORM ENGINEERING **08 2022 — 12 2022**
Deal Engine *Miami, FL (remote)*

- Developed deep learning algorithms for Natural Language Processing (NLP).
- Managed and controlled source code versions using Git.
- Built, accessed, and maintained databases using SQL.

SIMULATION INTERN **08 2022 — 12 2022**
Schneider Electric *Monterrey, Nuevo Leon, Mexico*

- Conducted static, quasi-static, and dynamic simulations of a cable modeled as a solid copper cylinder.
- Performed static, quasi-static, and dynamic simulations for cables composed of AWG6 gauge wires.

Leadership Experience

GENERATION LEADER / ENGINEERING PHYSICS ALUMNI **12 2022 — Present**
Tecnologico de Monterrey *Monterrey, Nuevo Leon, Mexico*

- Appointed as the Generation Leader by the 2022 Engineering Physics Alumni.
- Managing relationships between alumni and current students.

PRESIDENT / SOCIETY OF ENGINEERING PHYSICS STUDENTS **08 2020 — 08 2021**
Tecnologico de Monterrey *Monterrey, Nuevo Leon, Mexico*

- Successfully fundraised over 10 scholarships for B.Sc. Engineering Physics students.
- Coordinated the 40th-anniversary celebration of the B.Sc. Engineering Physics program.
- Spearheaded the XXII International Physics Symposium, featuring notable speakers such as Nobel Prize laureate Dr. William Phillips (1997) and Dr. David Reitze.

MCGILL UNIVERSITY **07 2018 — 07 2018**
Summer program *Montreal, Quebec, Canada*

- Participated in a leadership program focused on cross-cultural communication.

PRESIDENT / EN ACCION POR LA EDUCACION (EAXLE) **08 2017 — 08 2018**
Civil Society *Morelia, Michoacan, Mexico*

- Established the civil society organization, En Acción por la Educación (EAXLE).
- Developed a study plan to integrate students from marginalized elementary schools.
- Secured sponsorships and contributions to provide scholarships for students to continue their education.