Jonathan Daniel Acosta Salazar

Personal Information

Date of Birth	**December 18, 1987**
Nationality	**Chilean**
National ID	**16.879.817-2**
Address	**Avenida Vicuña Mackenna #4927,** **Apartment A-2807** **San Joaquín, Región Metropolitana**
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Academic Background

2013–2017 **Ph.D. in Mathematics**, *Consortium of Pontificia Universidad Católica de Valparaíso, Universidad Técnica Federico Santa María, and Universidad de Valparaíso*, Valparaíso, Chile

Scholarships 2013–2015 Internal Consortium Scholarship (PUCV–UTFSM–UV); 2016 National Doctoral Scholarship, CONICYT No. 21161031; and 2017 CONICYT Scholarship Extension

2006–2012 **Mathematical Civil Engineer with a Specialization in Applied Statistics**, *Universidad Técnica Federico Santa María*, Valparaíso, Chile

2006–2011 **Bachelor of Science in Mathematical Engineering**, *Universidad Técnica Federico Santa María*, Valparaíso, Chile

Doctoral Dissertation

Title *Effective Sample Size for Spatial Regression Models*

Supervisor Ronny Vallejos, Ph.D. in Statistics, University of Maryland Baltimore County, USA

Co-Supervisor Felipe Osorio, D.Sc., Universidade de São Paulo, Brazil

Description This dissertation presents a mathematical expression to determine the *effective sample size* (ESS) in the context of spatial regression models. Its theoretical properties and asymptotic behavior are analyzed. The main contribution lies in the mathematical understanding of information reduction caused by spatial autocorrelation in spatial statistics.

Academic Appointments

2021–Present **Assistant Professor**, *Department of Statistics*, Faculty of Mathematics, Pontificia Universidad Católica de Chile
Santiago, Chile

2018–2021 **Senior Lecturer (non-tenure track)**, *Institute of Statistics*, Pontificia Universidad Católica de Valparaíso, Valparaíso, Chile

Research Interests

Spatial Statistics; Statistical Modeling of Images; Time Series; Linear and Nonlinear Modeling; Environmental Impact and Risk Assessment; Forecasting under Uncertainty.

Publications (peer-reviewed)

2025 **Acosta**, J., Vallejos, R., and García-Soidán, P. (2025). "A penalized estimation of the variogram and effective sample size". In: *Spatial Statistics* 69, p. 100921. DOI: 10.1016/j.spasta.2025.100921.

2024 Pino-Cortés, E., Rabí, I., Muñoz, M., **Acosta**, J., Vallejo, F., Espinoza-Pérez, A., Espinoza-Pérez, L., and Carrasco, S. (2024). "Simulation of the air quality and evaluation of a future district heating system in Valdivia, Chile". In: *Atmospheric Pollution Research* 15.10, p. 102255. DOI: 10.1016/j.apr.2024.102255.

2024 **Acosta**, J., Vallejos, R., Ellison, A. M., Osorio, F., and Castro, M. de (Mar. 2024). "Comparing two spatial variables with the probability of agreement". In: *Biometrics* 80.1, ujae009. DOI: 10.1093/biomtc/ujae009.

2024 **Acosta**, J., Vallejos, R., and Gómez, J. (2024). "Correlation Integral for Stationary Gaussian Time Series". In: *Sankhya A* 86.1, pp. 191–214. DOI: 10.1007/s13171-023-00318-6.

2023 Pérez, J., **Acosta**, J., and Vallejos, R. (2023). "Assessing the estimation of nearly singular covariance matrices for modeling spatial variables". In: *Electronic Journal of Statistics* 17.2, pp. 3287 –3315. DOI: 10.1214/23-EJS2178.

2022 Pino-Cortés, E., Carrasco, S., **Acosta**, J., de Almeida Albuquerque, T. T., Pedruzzi, R., and Díaz-Robles, L. A. (2022). "An evaluation of the photochemical air quality modeling using CMAQ in the industrial area of Quintero-Puchuncavi-Concon, Chile". In: *Atmospheric Pollution Research* 13.3, p. 101336. DOI: 10.1016/j.apr.2022.101336.

2021 Orellana, R., Arancibia, A., Badilla, L., **Acosta**, J., Arancibia, G., Escar, R., Ferrada, G., and Seeger, M. (2021). "Ecophysiological Features Shape the Distribution of Prophages and CRISPR in Sulfate Reducing Prokaryotes". In: *Microorganisms* 9.5, p. 931. DOI: 10.3390/microorganisms9050931.

2021 Pino-Cortés, E., Díaz-Robles, L. A., Cubillos, F., Cereceda-Balic, F., Santander, R., Fu, J. S., Carrasco, S., and **Acosta**, J. (2021). "The black carbon dispersion in the Southern Hemisphere and its transport and fate to Antarctica, an Anthropocene evidence for climate change policies". In: *Science of The Total Environment* 778, p. 146242. DOI: 10.1016/j.scitotenv.2021.146242.

2021 **Acosta**, J., Alegría, A., Osorio, F., and Vallejos, R. (2021). "Assessing the effective sample size for large spatial datasets: A block likelihood approach". In: *Computational Statistics & Data Analysis* 162, p. 107282. DOI: 10.1016/j.csda.2021.107282.

2021 Vallejos, R. and **Acosta**, J. (2021). "The effective sample size for multivariate spatial processes with an application to soil contamination". In: *Natural Resource Modeling* 34.4, e12322. DOI: 10.1111/nrm.12322.

2018 **Acosta**, J. and Vallejos, R. (2018). "Effective sample size for spatial regression models". In: *Electronic Journal of Statistics* 12.2, pp. 3147 –3180. DOI: 10.1214/18-EJS1460.

2018 **Acosta**, J., Vallejos, R., and Griffth, D. (2018). "On the effective geographic sample size". In: *Journal of Statistical Computation and Simulation* 88.10, pp. 1958–1975. DOI: 10.1080/00949655.2018.1428977.

2018 Vallejos, R., Buckley, H., Case, B., **Acosta**, J., and Ellison, A. M. (2018). "Sensitivity of Codispersion to Noise and Error in Ecological and Environmental Data". In: *Forests* 9.11. DOI: 10.3390/f9110679.

2016 **Acosta**, J., Osorio, F., and Vallejos, R. (2016). "Effective Sample Size for Line Transect Sampling Models with an Application to Marine Macroalgae". In: *Journal of Agricultural, Biological, and Environmental Statistics* 21.3, pp. 407–425. DOI: 10.1007/s13253-016-0252-7.

2016 Vallejos, R., Mancilla, D., and **Acosta**, J. (2016). "Image Similarity Assessment Based on Coefficients of Spatial Association". In: *Journal of Mathematical Imaging and Vision* 56.1, pp. 77–98. DOI: 10.1007/s10851-016-0635-y.

2013 Vallejos, R. O., Fabré, N. N., da Silva Batista, V., and **Acosta**, J. (2013). "The application of a general time series model to floodplain fisheries in the Amazon". In: *Environmental Modelling & Software* 48, pp. 202–212. DOI: 10.1016/j.envsoft.2013.07.004.

Articles Under Review

Ronny Vallejos**, Jonathan Acosta** and Bastián Sepúlveda, *Image Rotation Angle Estimation Using Spatial Cross-Correlation Techniques*, *Spatial Statistics* (under review)

Manuscripts in Preparation

Fernanda De Bastiani**, Jonathan Acosta**, Manuel Galea and Miguel Uribe-Opazo, *Local Influence Analysis in a Gaussian Spatiotemporal Model*

Francisco Cuevas and **Jonathan Acosta**, *Local Kriging Neighbors Selection via a Lasso Penalty*

Vanesa Reinoso, Isabelle Beaudry, Danilo Alvarez and **Jonathan Acosta**, *Inference from Multivariate Differential Recruitment in Respondent-Driven Sampling Data*

Bladimir Morales, **Jonathan Acosta**, Christian Caamaño and Victor de Olivera, *Gaussian Massive Spatial Datasets: A Block-Pairwise Likelihood Approach*

Jonathan Acosta, Daira Velandia and Fabián Gómez, *Effective Sample Size Under Fixed Domain*

Jonathan Acosta and Jorge Mateu, *Effective Sample Size for Log Gaussian Cox Process*

Jonathan Acosta and Esteban Paduro, *The SPDE Approach to General Covariance Structures*

Research Grants and Funded Projects

As Principal Investigator

2026–2027 **Causal Factors and Prediction of Large-Scale Forest Fires: Analysis of the Climate–Fuel Relationship at Different Scales and Inclusion of Socioeconomic Factors in Chile and Canada**, *AVANZA UC — Grant ID AV25151*, Pontificia Universidad Católica de Chile

2026–2027 **LIVE ANDES 2.0: Validating Image Recognition from Camera Traps Using Neural Networks and DeepSeek for Wildlife Identification and Semi-Automated Data Curation and Analysis**, *AVANZA UC — Grant ID AV25249*, Pontificia Universidad Católica de Chile

2023–2026 **Effects of Strong Spatial Dependence: Large Samples, How Much Information Do They Really Have?**, *ANID–FONDECYT Initiation Grant — Grant ID 11230502*, Pontificia Universidad Católica de Chile

2022–2023 **Spatial Statistics under Strong Dependency and Large Sample Size**, *INICIO-2022-11*, Pontificia Universidad Católica de Chile

2019 **Semiparametric Estimation of the Effective Sample Size**, *Emergent Research Project*, Pontificia Universidad Católica de Valparaíso, (original title in Spanish)

2018 **Extensions of the Effective Sample Size and Geometric Aspects of the Codispersion Map**, *Internal Initiation Project*, Pontificia Universidad Católica de Valparaíso, (original title in Spanish)

As Co-Investigator

2020–2022 **Health Situation of Workers in Selected Economic Activities: Port Sector**, *Superintendencia de Seguridad Social (SUSESO)*, Co-Investigator
(original title in Spanish)

2020 **Sensitivity Analysis of the WRF Model for Its Application in Coastal Zones of Chile**, *Interdisciplinary Undergraduate Research Project*, Pontificia Universidad Católica de Valparaíso, (original title in Spanish)

Other Funded Research Participation

2013–2016 **Association Characteristics Between Two Spatial Processes and Reduction of Sample Size in Spatial Statistics**, *ANID–FONDECYT Regular Grant — Grant ID 1120048*, Doctoral Thesis Student

2013 **Estimating Probabilities of Inter-Subjective Agreement in Conventionalized Domains**, *ANID–FONDECYT Regular Grant — Grant ID 1130052*, Technical and Research Support Staff

Research Visits

2022 **Research Visit**, *Department of Statistics*, Universidade Federal de São Carlos, São Carlos, Brazil
Host: Prof. Mário de Castro

2024 **Research Visit**, *School of Mathematics*, University of Edinburgh, Edinburgh, United Kingdom
Host: Prof. Miguel de Carvalho

2025 **Research Visit**, *Department of Mathematics*, Universitat Jaume I, Castellón de la Plana, Spain
Host: Prof. Jorge Mateu

International Visiting Scholars

2026 **Visiting Scholar**, *Department of Statistics, Faculty of Mathematics*, Pontificia Universidad Católica de Chile, Santiago, Chile
Host: Jonathan Acosta; Visitor: Prof. Aaron Ellison (Harvard University)

Honors and Awards

2024 **PRED – Premio de Reconocimiento a la Excelencia Docente (Teaching Excellence Recognition Award)**, *University-wide Award*, Pontificia Universidad Católica de Chile

2024 **Teaching Excellence Award**, *Faculty of Mathematics*, Pontificia Universidad Católica de Chile

2024 **Best Instructor Award**, *M.Sc. Program in Artificial Intelligence*, Pontificia Universidad Católica de Chile

2023 **Best Instructor Award**, *M.Sc. Program in Artificial Intelligence*, Pontificia Universidad Católica de Chile

Invited Talks

November 2025 **Effective Sample Size for Gaussian Processes under Fixed and Increasing Domains**, Graduate Program in Statistics, Universidade Federal de Pernambuco, Recife, Brazil

September 2025 **Effective Sample Size for Gaussian Processes**, Predoctoral School in Mathematics and Statistics, Faculty of Mathematics, Pontificia Universidad Católica de Chile, Santiago, Chile

July 2025 **Effective Sample Size for Gaussian Processes under a Fixed Domain**, Department of Mathematics Seminar, Universidad Técnica Federico Santa María, Valparaíso, Chile

September 2023 **Assessing the Estimation of Nearly Singular Covariance Matrices for Modeling Spatial Variables**, Department of Statistics Seminar, Faculty of Mathematics, Pontificia Universidad Católica de Chile, Santiago, Chile

September 2021 **Effective Sample Size in Geostatistical Modeling**, Predoctoral School in Mathematics and Statistics, Faculty of Mathematics, Pontificia Universidad Católica de Chile, Santiago, Chile

Invited Workshops and Special Sessions

August 2024 **Invited Speaker**, *Nonparametric Estimation of the Variogram and the Effective Sample Size*, Workshop on Statistical Modeling and Data Science (WSDS UC 2024), Pontificia Universidad Católica de Chile, Santiago, Chile

December 2024 **Invited Speaker**, *Nonparametric Estimation of the Variogram and the Effective Sample Size*, Mini-Workshop IDEUV: Despedida Año Académico 2024, Universidad de Valparaíso, Valparaíso, Chile

Conference Presentations

November 2025 **Effective Sample Size under Fixed Domain and Large Samples**, *IX LACSC*, Latin American Conference on Statistical Computing, Universidad de Valparaíso, Valparaíso, Chile

June 2025 **Effective Sample Size for Gaussian Processes under Fixed-Domain Asymptotics**, *METMA LATAM II*, Latin American Conference on Spatio-Temporal Modelling, Universidad del Norte, Barranquilla, Colombia

November 2024 **Local Influence for Gaussian Spatio-Temporal Models**, III Conference on Geostatistics and Spatio-Temporal Statistics, Universidad Técnica Federico Santa María, Valparaíso, Chile

October 2024 **A Valid Nonparametric Estimation of the Variogram and the Effective Sample Size**, *JNE 2024*, XLVII National Conference on Statistics, Universidad Austral de Chile, Valdivia, Chile

July 2024 **Nonparametric Estimation of the Variogram and the Effective Sample Size**, *XI METMA 2024*, International Conference on Spatio-Temporal Modelling, Lancaster University, Lancaster, United Kingdom

April 2024 **Local Influence for Gaussian Spatio-Temporal Models**, XXXVI Southern Chile Mathematics Meeting, Universidad Católica de Temuco, Temuco, Chile

November 2023 **Local Influence for Gaussian Spatio-Temporal Models**, *ICDS 2023*, International Conference on Data Science, Universidad Diego Portales, Santiago, Chile

July 2023 **Assessing the Estimation of Nearly Singular Covariance Matrices for Modeling Spatial Variables**, *SPASTAT 2023*, Spatial Statistics 2023: Climate and the Environment, University of Colorado Boulder, Boulder, USA

October 2022 **Comparing Two Spatial Variables with the Probability of Agreement**, *JNE 2022*, XLVI National Conference on Statistics, San Pedro de Atacama, Chile

August 2022 **Assessing the Estimation of Nearly Singular Covariance Matrices for Modeling Spatial Variables**, *COMPSTAT 2022*, 24th International Conference on Computational Statistics, University of Bologna, Bologna, Italy

April 2021 **Nonparametric Effective Sample Size**, *V LACSC*, 5th Latin American Conference on Statistical Computing, Instituto Tecnológico Autónomo de México (ITAM), Mexico City, Mexico

March 2020 **Nonparametric Effective Sample Size and Its Applications**, *EFS 2020*, Econometrics and Financial Statistics Workshop, Santiago, Chile

October 2019 **Semiparametric Estimation of Effective Sample Size**, *JNE 2019*, XLV National Conference on Statistics, Puerto Varas, Chile

November 2018 **On the Geometry of the Codispersion Coefficient**, *CSDS 2018*, First Conference on Statistics and Data Science, Salvador, Bahia, Brazil

July 2016 **Spatial Effective Sample Size for Regression Models**, *SINAPE 2016*, XXII National Symposium on Probability and Statistics, Porto Alegre, Brazil

December 2015 **Edge Detection in Polymer Images Used in Skin Reconstruction**, *SEEMI 2015*, VI Symposium on Spatial Statistics and Image Modeling, Toledo, Paraná, Brazil

October 2015 **Effective Sample Size for Spatial Models with Covariates**, XXI Statistics Week, Valparaíso, Chile

October 2015 **Effective Sample Size for Spatial Models with Covariates**, *JNE 2015*, XLII National Conference on Statistics, Concepción, Chile

September 2014 **Estimation and Local Influence in Gaussian Models with Partially Linear Covariance Structures**, *CLAPEM 2014*, XIII Latin American Congress of Probability and Mathematical Statistics, Cartagena de Indias, Colombia

November 2013 **Estimation and Local Influence in Partially Linear Covariance Models**, *SEEMI 2013*, V Symposium on Spatial Statistics and Image Modeling, Córdoba, Argentina

September 2013 **Application of a General Time Series Model in Amazonian Fisheries**, XIX Statistics Week, Valparaíso, Chile

October 2012 **Local Influence in Partially Linear Covariance Models**, XVIII Statistics Week, Valparaíso, Chile

October 2012 **Local Influence in Partially Linear Covariance Models**, *CLATSE 2012*, X Latin American Congress of Statistical Societies, Córdoba, Argentina

November 2011 **A General Time Series Model to Explain and Predict Cyclical Systems: An Application to Floodplain Fisheries**, *SOMACHI 2011*, LXXX Annual Meeting of the Chilean Mathematical Society, Chile

Public Outreach and Science Communication

2024 **Instructor**, *Taller de Investigación Matemática (TIR)*, Mini-course for secondary school students (four sessions), Pontificia Universidad Católica de Chile

November 2022 **What Is Kriging? The Revolution of Daniel G. Krige in Geostatistics**, Encuentro con Gauss, Gauss Library, Pontificia Universidad Católica de Chile, Santiago, Chile

Teaching Experience

2021–Present **Assistant Professor**, *Department of Statistics, Faculty of Mathematics*, Pontificia Universidad Católica de Chile, Santiago, Chile

Undergraduate Courses: Statistics; Introduction to Data Management and Exploratory Data Analysis; Statistical Inference; Statistics for Mathematics; Scientific Initiation Workshop.

Graduate Courses (M.Sc.): Time Series Analysis; Spatial Statistics; Generalized Linear Models; Statistical Inference; Statistical and Computational Learning; Supervised Learning; Unsupervised Learning.

Doctoral Courses (Ph.D.): Classical Inference; Spatial Statistics; Exploratory and Computational Methods.

2018–2021 **Senior Lecturer (non-tenure track)**, *Institute of Statistics*, Pontificia Universidad Católica de Valparaíso, Valparaíso, Chile

Undergraduate Courses: Statistical Computing I; Database Systems; Time Series Analysis; Statistical Inference; Bayesian Methods.

Graduate Courses (M.Sc.): Advanced Time Series Analysis; Spatial Statistics; Multivariate Analysis; Statistical Consulting Workshop.

2013–2017 **Part-time Lecturer**, *Department of Mathematics*, Universidad Técnica Federico Santa María, Valparaíso, Chile

Undergraduate Courses: Mathematics I–III; Probability and Statistics; Industrial Probability and Statistics; Multivariate Statistical Analysis; Statistical Inference; Spatial Statistics.

2014–2017 **Part-time Lecturer**, *Faculty of Engineering*, Universidad Santo Tomás, Viña del Mar, Chile

Undergraduate Courses: Introduction to Calculus; Calculus I–II; Algebra I; Differential Equations.

Continuing Education and Extension

2024–Present **Instructor**, *Diploma in Statistics*, Faculty of Mathematics, Pontificia Universidad Católica de Chile, Santiago, Chile

Courses taught: Generalized Linear Models (including Logistic Regression); Nonlinear Regression.

2022–Present **Instructor**, *Diploma in Data Science*, Faculty of Mathematics, Pontificia Universidad Católica de Chile, Santiago, Chile

Courses taught: Statistical Learning; Machine Learning; Introduction to R Programming.

Graduate Student Supervision

Doctoral Theses

2023 **John Elber Gómez Daza**, *Integral Correlation Behavior in Spatio-Temporal Processes*, Ph.D. in Mathematics, PUCV–UTFSM–UV Consortium

Co-Advisor

Master's Theses

2025 **Ismael Bravo Rodríguez**, *Spatial Interpolation of NO_2 to Estimate Preterm Birth Risk: Comparison with a Bottom-Up Emissions Model*, M.Sc. in Statistics, Pontificia Universidad Católica de Chile
Primary Advisor

2025 **Roberto Díaz Vivanco**, *Minimum Rigidity of a Stanley–Reisner Ring: A Machine Learning PatternBoost Strategy*, M.Sc. in Statistics, Pontificia Universidad Católica de Chile
Primary Advisor

2025 **Javiera Preuss Araya**, *Spatio-Temporal Modeling of Wildfire Propagation Using Satellite Imagery*, M.Sc. in Statistics, Pontificia Universidad Católica de Chile
Primary Advisor

2025 **Patricio Sepúlveda Herrera**, *Analysis of Performance in the PAES Mathematics M1 Examination (2025 Admission) Using Bayesian Models*, M.Sc. in Statistics, Pontificia Universidad Católica de Chile
Primary Advisor

2025 **Josefa Silva Muñoz**, *Development of a Personalized Irrigation Recommendation System for Optimizing Iodine Extraction in Caliche Leaching Heaps*, M.Sc. in Statistics, Pontificia Universidad Católica de Chile
Primary Advisor

2024 **Francisco Vargas Vega**, *Characterization of* Caligus rogercresseyi *Parasitic Loads in the Aysén Region Using Ordinary Kriging and Distance-Based Metrics*, M.Sc. in Statistics, Pontificia Universidad Católica de Chile
Primary Advisor

2022 **Gianina Palomera, Benjamín De Filippi, and Igraine Quiroz**, *Predictive Modeling for the Purchase of Base Oils: Case Study of Esmax Distribución SpA*, M.Sc. in Statistics, Pontificia Universidad Católica de Chile
Primary Advisor

2020 **Ariel Díaz Ortiz**, *Review of Classical Models for Copper Price Forecasting and a Multivariate Alternative*, M.Sc. in Statistics, Pontificia Universidad Católica de Valparaíso
Primary Advisor

2020 **Rodolfo Fuentes Tognarelli**, *Spatial Econometrics: Employment versus Coronavirus*, M.Sc. in Statistics, Pontificia Universidad Católica de Valparaíso
Primary Advisor

2020 **Ignacio Aranda Farías**, *Development of Predictive Prototypes for Wine Grape Quality*, M.Sc. in Statistics, Pontificia Universidad Católica de Valparaíso
Co-Advisor

2020 **Sofía Martínez Vejar**, *Animal Detection in Drone Imagery*, M.Sc. in Statistics, Pontificia Universidad Católica de Valparaíso
Co-Advisor

2019 **Pablo Muñoz Lucero**, *Latent Variable Analysis: Exploring Pedagogical Practices in Early Childhood Education*, M.Sc. in Statistics, Pontificia Universidad Católica de Valparaíso
Primary Advisor

2019 **Javier Ojeda Pérez**, *Spatial Statistics for Nearly Singular Covariance Matrices*, M.Sc. in Science (Mathematics), Universidad Técnica Federico Santa María
Co-Advisor

2019 **Celso Soto Izquierdo**, *Travel Time Modeling in the Metropolitan Region: Universal Kriging as a Modeling Tool*, M.Sc. in Statistics, Pontificia Universidad Católica de Valparaíso
Primary Advisor

2019 **Álvaro Vidal Cruz**, *Geographic Distribution Range of the* Turca *(*Pteroptochos megapodius*) Using Spatial Statistical Methods*, M.Sc. in Statistics, Pontificia Universidad Católica de Valparaíso
Primary Advisor

2018 **José Jofré González**, *Spatial Analysis of Communal Poverty in the Metropolitan Region (2017)*, M.Sc. in Statistics, Pontificia Universidad Católica de Valparaíso
Primary Advisor

2018 **Leslie Santelices Benítez**, *Prediction of High Air Pollution Episodes Using Univariate Time Series Models*, M.Sc. in Statistics, Pontificia Universidad Católica de Valparaíso
Primary Advisor

2018 **Mauricio Torres Yáñez**, *Development of a Predictive Model for Mathematics PSU Results in Secondary School Students*, M.Sc. in Statistics, Pontificia Universidad Católica de Valparaíso
Primary Advisor

Graduate Committees and Examination Boards

Member of master's and doctoral thesis examination boards in Statistics programs, including internal and external evaluations at the Pontificia Universidad Católica de Chile and the Pontificia Universidad Católica de Valparaíso (2018–present).

Academic Service

2023–Present **Head of Undergraduate Program in Statistics**, Faculty of Mathematics, Pontificia Universidad Católica de Chile

2024–Present **Member, Curriculum Committee**, B.Sc. Program in Data Science Engineering, Pontificia Universidad Católica de Chile

2024–2025 **Founder and Organizer, Statistics and Data Science Colloquium**, Faculty of Mathematics, Pontificia Universidad Católica de Chile

2023 **Organizer, Department of Statistics Seminar**, Faculty of Mathematics, Pontificia Universidad Católica de Chile

2021, 2022 **Member, Organizing Committee**, Predoctoral School in Mathematics and Statistics, Pontificia Universidad Católica de Chile

Conference Organization and Thematic Sessions

2025 **Organizer, Thematic Session**, *Spatial Data Analysis on Non-Classical Assumptions*, IX Latin American Conference on Statistical Computing (LACSC 2025)

2018 **Co-Organizer, Thematic Session**, *Estadística Matemática Moderna*, LXXXVII Annual Meeting of the Chilean Mathematical Society (SOMACHI 2018), Universidad de O'Higgins, Rancagua, Chile

Peer Review and Editorial Activity

Ad hoc referee for peer-reviewed journals, including:

Bayesian Analysis; *Spatial Statistics*; *Journal of Agricultural, Biological, and Environmental Statistics*; *Environmental and Ecological Statistics*; *Stochastic Environmental Research and Risk Assessment*; *Statistical Papers*; *Sankhyā Series A*; *Brazilian Journal of Probability and Statistics*; *Chilean Journal of Statistics*.

Scientific Program Committees, including:

IX Latin American Conference on Statistical Computing (LACSC 2025); *International Conference on Data Science (ICDS 2023)*.

Professional Experience

2023 **Applied Statistical Analysis of Credit Scoring Models**, *Santiago Chamber of Commerce (CCS)*

2022 **Statistical Analysis for the Monitoring of Highly Migratory Resources (Ecosystem Approach)**, *Department of Oceanography and Environment, Institute for Fisheries Development (IFOP)*

2020 **Statistical Analysis for the Monitoring of Highly Migratory Resources (Ecosystem Approach)**, *Department of Oceanography and Environment, Institute for Fisheries Development (IFOP)*

2019 **Environmental Risk Assessment of Soil Contamination**, *Inmobiliaria Las Salinas*

2019 **Evaluation of Teaching Performance and Institutional Impact**, *Pontificia Universidad Católica de Valparaíso*

2017 **Risk Factor Analysis for Academic Performance in First-Year University Students**, *Universidad Andrés Bello*

2015–2017 **Statistical Analysis of Mathematics Diagnostic Examinations**, *Universidad Técnica Federico Santa María*

2016 **Statistical Modeling of Infectious Complication Risk after Prostate Biopsy**, *Private Consultant Project*

2010 **Reliability Analysis for Preventive Control in Mining Operations**, *Universidad Técnica Federico Santa María*

Computer Skills

Programming Languages	C++, R, Python
Scientific Software	RStudio, S-PLUS, SPSS, Mathematica
Typesetting	LaTeX
Other Tools	Microsoft Office, @RISK