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Education

- 2021 PhD in Statistics, Pontificia Universidad Católica de Chile, Santiago, Chile.
Thesis: [Modelling predictive validity problems: A partial identification approach.](#)
Advisor: Ernesto San Martín and Jorge González
- 2012 MSc in Applied Statistics, Universidad de Concepción, Concepción, Chile.
- 2009 Teaching degree in Math and Computer Sciences, Universidad Católica del Maule, Talca, Chile.

Academic Appointments

- Since 2022 Postdoctoral researcher, School of Psychology, Pontificia Universidad Católica de Chile.
- 2021 – 2023 Part-Time Lecturer, Department of Statistics, Pontificia Universidad Católica de Chile.
- 2012 – 2016 Part-Time Lecturer, Institute of Mathematics and Physics, Universidad de Talca.
- 2011 – 2016 Part-Time Lecturer, Faculty of Basic Sciences, Universidad Católica del Maule.

Fellowships and awards

- 2023 Best Scientific Work: the best oral presentation. *Ignorabilidad: UN supuesto para la toma de decisiones en salud pública y en investigación científica* in 1st Interdisciplinary Postdoctoral Research Symposium. Universidad del Desarrollo, Chile.
- 2018 CONICYT, *Beca Doctorado Nacional*, año 2018. Chilean Government, PhD Scholarship.
- 2017 Vicerrectoría de Investigación, Pontificia Universidad Católica de Chile. *Teaching Assistant*. PhD Scholarship.
- 2010 Graduate School, Universidad de Concepción. *Beca de estipendio y Beca de exención de matrícula*. MSC Scholarship.

Publications

- [1] Le Corre, N., Abarca, K., Astudillo, P., Valenzuela, V., Schilling, A., Gaete, V.; Rubio, L., Calvo, M.; Twele, L., González, M., et al. (2023). *Different Safety Pattern of an Inactivated SARS-CoV-2 Vaccine (CoronaVac®) According to Age Group in a Pediatric Population from 3 to 17 Years Old, in an Open-Label Study in Chile*. *Vaccines*. 11 (10): 1526 [[Article](#)]
- [2] Alarcón-Bustamante, E., Varas, IM., San Martín, E.. (2023) *On the impact of missing outcomes in linear regression*. *Chilean Journal of Statistics* 14 (1) 26–36. [[Article](#)]
- [3] Alarcón-Bustamante, E. (2023) *Ignorabilidad: un supuesto clave en la dinámica de la inferencia estadística en Ciencias de la Salud*. *Inferencias: Boletín de Bioestadística* 7 11-13. [[Article](#)]

- [4] Soto, J., Melo-González, F., Gutiérrez-Vera, C., et.al (2022). *Inactivated Vaccine-Induced SARS-CoV-2 Variant-Specific Immunity in Children*. *mBio* 13 (6) e01311-22 [[Article](#)]
- [5] Alarcón-Bustamante, E. (2022). *Ignorar o no ignorar, esa es la cuestión*. *Cuadernos de Beauchef. Ciencia, tecnología y cultura* 6 (1) 15-33. [[Article](#)]
- [6] San Martín, E., Alarcón-Bustamante, E. (2022) *Dissecting Chilean surveys: the case of missing outcomes*. *Chilean Journal of Statistics*, 13 (1) 17–46. [[Article](#)]
- [7] Alarcón-Bustamante, E., San Martín, E. & González, J. (2021). *On the marginal effect under partitioned populations: Definition and Interpretation*. In Wiberg, M., Molenaar, M., González, J., Böckenholt, U., and Kim, JS. (Eds.), *Quantitative Psychology: The 85th Annual Meeting of the Psychometric Society*, Virtual. Springer Proceedings in Mathematics & Statistics. [[Article](#)]
- [8] Alarcón-Bustamante, E., San Martín, E. & González, J. (2020). *Predictive validity under partial observability*. In Wiberg, M., Molenaar, M., González, J., Böckenholt, U., and Kim, JS. (Eds.), *Quantitative Psychology. IMPS2019*. Springer Proceedings in Mathematics & Statistics, vol 322. Springer, Cham. [[Article](#)]
- [9] Cornejo, J., Tapia, J., Guerra, F., Yáñez, M., Baettig, R., Guajardo, J., Alarcón, E. & Vidal, G. (2017). *Variation in Copper Accumulation at the Tissue Level of Five Hybrid Poplars Subjected to Copper Stress*. *Water Air and Soil Pollution*, 228:212. [[Article](#)]
- [10] Vásquez, B. & Alarcón, E. (2016) *Inclusión en universidades chilenas: del discurso a interacciones prácticas, políticas y culturales*. *Pensamiento Educativo. Revista de Investigación Educativa Latinoamericana*, 53(2), 1-19. [[Article](#)]

Research

- 2023–2025 *Expulsando el infinito actual de la estadística: revisitando la Ley de los Grandes Números a la luz del infinito potencial*. FONDEMAT, Facultad de Matemáticas, Pontificia Universidad Católica de Chile. Co-Principal Investigator.
- 2022–2024 *Development of Modelling Tools for a Predictive Validity Agenda for University Admissions*. Postdoctoral FONDECYT 3220422, Chilean Government. Principal Investigator.
- 2023–2024 *Millenium Nucleus on Intergenerational Mobility: From modelling to Policy*. Iniciativa Milenio NCS2021072, Chilean Government. Postdoctoral researcher.
- 2022–2024 *Admisión universitaria más allá de la selección*. FONDEF IDeA I+D ID22110228, Chilean Government. Associate researcher.
- 2021–2022 *Estudio clínico multicéntrico de fase 3, doble ciego, aleatorizado, controlado con placebo, para evaluar la eficacia, inmunogenicidad y seguridad de una vacuna contra COVID19 (células Vero), inactivada (CoronaVac®), en niños y adolescentes de 6 meses a 17 años (PedCoronaVac03CL)*. Sinovac Life Sciences Co., Ltd. Data Manager and Statistician.

Teaching

Graduate level

- **Pontificia Universidad Católica de Chile (Teaching assistant):** Multivariate Analysis (II-2022) in *Mater degree in Statistics*; Probabilistic methods for machine learning (II-2022) in *Mater degree in Artificial Intelligence*; Exploratory and Computational Methods for Statistics (I-2019, I-2021), Advanced Statistical Methods III (I-2019), Advanced Statistical Methods II (II-2018). In *PhD degree, Statistics*.

- **Universidad Católica del Maule (Teacher):** Data processing and random games (2014, 2015, 2016), Probability Models (2015, 2016) in *MSc degree, Didactic of Mathematics*. Biostatistics (II-2015), Advanced Biostatistics (I-2016) in *MSc degree, Nursing*. Fundamentals of Statistics (II-2014, 2015) in *MSc degree, Education*.

Undergraduate level

- **Pontificia Universidad Católica de Chile**

- **Teacher:** Introduction to statistics (I-2023), Psychometric (II-2021), Statistical Software (I-2021), Introduction to Data Management and Exploration - Computational Laboratory (I-2021) in *Statistics Program*; Statistics and Probability (II-2021, I-2023) in *Political Science Program*; Statistics for Chemistry and Pharmacy (I-2021) *In Pharmaceutical Chemistry program*.
- **Teaching assistant:** Probability Models (II-2022), Biostatistics (I-2020), Statistical Methods (II-2019). In *Statistics program*.

- **Universidad de Talca (Teacher):** Statistics and probability (I-2012 to II-2016) in *Civil Engineering program*; Statistical Analysis (I-2016) in *Psychology program*; Statistical quality control (II-2015, I-2016) in *Industrial Civil Engineering program*; Statistics I (I-2014), Statistics II (I-2014) in *Public Accountant and Auditor program*.

- **Universidad Católica del Maule (Teacher):** Didactic of Statistics (II-2016), Statistics I (II-2016) in *Teaching in Maths and Computer Sciences program*; Biostatistics (II-2011, I-2012) in *Nutritionist program*; Linear regression analysis (I-2011), Statistics and experimental designs (II-2011) in *Forest Engineering program*.

Selected presentations

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- [1] *De una parte al todo: un camino estadístico poco explorado en el ámbito público*. Congreso Ecosistemas territoriales saludables y resilientes: Desafíos en la co-construcción de un Diseño con equidad para la articulación de las Redes Asistenciales de Salud - Ministerio de Salud. September, 2023, Santiago, Chile. Poster presentation.
 - [2] *Ignorabilidad: UN supuesto para la toma de decisiones en salud pública y en investigación científica*. I Simposio Interdisciplinario de Investigación Postdoctoral. August, 2023. Universidad del Desarrollo, Chile. Oral Presentation.
 - [3] *Measuring the effect of an explanatory random variable in partitioned populations*. Jornadas de Matemática de la Zona Sur. April 2023. Universidad de Concepción, Concepción, Chile. Oral Presentation.
 - [4] *Ignoring the ignorability in the Chilean surveys analysis: a partial identification approach*. Jornadas Nacionales de Estadística. October, 2022. San Pedro de Atacama, Chile. Oral Presentation.
 - [5] *Data+Assumptions=Conclusion: how this equation affects the predictive capacity of selection university tests?* Jornadas Nacionales de Estadística. October, 2022. San Pedro de Atacama, Chile. Oral Presentation.
 - [6] *Ignorar o no ignorar, esa es la cuestión*. Invited conference in Cuadernos de Beauchef nro. 1, vol. VI, 2022 presentation. September, 2022. Faculty of Physics Sciences and Mathematics, Universidad de Chile. Oral Presentation.
 - [7] *A global assessment for the predictive capacity of selection tests in partially observed populations*. International Meeting of the Psychometric Society. July, 2022. University of Bologna, Italy. Oral Presentation.
 - [8] *Marginal effect in selection tests: A partial identification approach*. (Virtual) International Meeting of the Psychometric Society. July, 2021. Oral Presentation.

- [9] Alarcón-Bustamante, E. (2021, Feb) *Predictive Validity Under Partial Observability*. (Virtual) Paper selected for presentation at the International Objective Measurement Workshop (IOMW) Conference, Berkeley, CA. <https://www.iomw.org/>. Oral Presentation.
- [10] *New Insights on marginal effects*. (Virtual) International Meeting of the Psychometric Society. July, 2020. Oral Presentation.
- [11] *Partial identification in predictive validity of selection tests*. International Meeting of the Psychometric Society, Santiago, Chile. July, 2019. Oral Presentation.

Students

- Francisco Ramírez and Sebastián Castillo (Graduated, June 2023): *Habilidades superiores estadísticas en la representación gráfica de datos: Una propuesta didáctica para octavo básico*. Seminario de título; Pedagogía Media en Ciencias y Matemática, Pontificia Universidad Católica de Chile (supervised with Monika Dockendorff).
- Sigrid Villegas and Nicolás Julio (Graduated, December 2023): *La enseñanza de probabilidades por parte de un docente chileno en educación media*. Seminario de título; Pedagogía Media en Ciencias y Matemática, Pontificia Universidad Católica de Chile (supervised with Karina Álvarez).
- Bastián Sánchez (Graduated, December 2022): *Desarrollo del pensamiento geométrico por medio de las PG bajo el Modelo de Van Hiele*. Seminario de título; Pedagogía Media en Ciencias y Matemática, Pontificia Universidad Católica de Chile (supervised with Patricio Rodríguez).

Events Organiser

- *Avances recientes en psicometría*. Invited session in Jornadas Nacionales de Estadística. October, 2022. San Pedro de Atacama, Chile.
- *Ciclo de Coloquios “Ciencia, Política, Políticas Públicas: ¿Qué relaciones?”*, LIES - UChile. April - October, 2021.
- *Identification Problems in Empirical Research*. Symposium in the International Meeting of the Psychometric Society, 2021.
- *Advanced topics in admission university tests*. Symposium in the International Meeting of the Psychometric Society, 2019.

Academic Relevant Information

- Visitant researcher in UC Louvain, Belgium (Visit to Sébastien Van Belleghem) - November, 2022.
- Visitant researcher in KU Leuven, Belgium (Visit to Francis Tuerlinckx) - November, 2022.
- Associate Researcher to the [Interdisciplinary Laboratory of Social Statistics](#) (LIES), since 2018.
- Secretary of the [Chilean Society of Statistics](#), SOCHE, 2020-2021.
- Member of the Volunteer Team, International Meeting of the Psychometric Society, 2019.

Skills

- **Softwares:** R, SQL, SAS, SPSS, Minitab, Excel, \LaTeX .
- **Languages:** Spanish (native), English (advanced).

Last updated: September 2023