

## Luis Gutiérrez Inostroza

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### CONTACT INFORMATION

Department of Statistics, Faculty of Mathematics  
[Pontifical Catholic University of Chile](#), Avenida Vicuña  
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### RESEARCH INTERESTS

Bayesian nonparametric, Bayesian hypothesis testing, Statistical shape analysis

### ACADEMIC POSITIONS

[Pontificia Universidad Católica de Chile](#), Santiago

- Assistant Professor, Department of Statistics 2016–present

[IIMAS-UNAM](#), México, D.F.

- Postdoctoral research fellow, Department of Probability and Statistics 2015–2016

[Universidad de Chile](#), Santiago

- Assistant Professor, School of Public Health, Faculty of Medicine 2011–2015

[Universidad de Concepción](#)

- Research Assistant (*Statistician*), Department of Instrumental Analysis, 2003–2005  
Supervisors: [Glenn Hofmann](#), Dietrich von Baer

### EDUCATION

[Pontificia Universidad Católica de Chile](#), Santiago

Ph.D., [Statistics](#), 2011

- Thesis Topic: *Multivariate Bayesian Methods for Authentication of Food and Beverages*
- Advisor: [Fernando Quintana, Ph.D](#)

[Universidad de Concepción](#), Concepción

M.S., [Forestry Science](#), 2004

- Thesis Topic: *Using Geostatistics for Determining tree volumes in forests*
- Advisor: [Pedro Real, Ph.D](#)

B.S., [Forestry Engineer](#), 2001

### REFEREED JOURNAL PUBLICATIONS

1. Arrigo, Coen **Luis Gutiérrez**, Ramsés Mena. Modeling failures times with dependent renewal type models via exchangeability. *Statistics*, 2019 in Press
2. **Luis Gutiérrez**, Andrés, F. Barrientos, Jorge González, Daniel Taylor-Rodríguez. A Bayesian nonparametric multiple testing procedure for comparing several treatments against a control. *Bayesian Analysis*. 14: 649–675, 2019
3. **Luis Gutiérrez**, Eduardo Gutiérrez-Peña, Ramsés Mena. A Bayesian approach to statistical shape analysis via the projected normal distribution. *Bayesian Analysis*. 14: 427–447, 2019

4. **Luis Gutiérrez**, Ramsés Mena, Carlos Díaz-Avalos. Linear models for statistical shape analysis based on parametrized closed curves. *Statistical Papers*, 2017 in Press
5. Ruiz, P., Arias, N., Pardo, S., Meyer, M., Mesías, S., Galleguillos, C., Schiattino, I. and **Gutiérrez, L.** (2016). Impact of large industrial emission sources on mortality and morbidity in Chile: A small-areas study. *Environment International*. *92-93: 130-138*, 2016
6. **Luis Gutiérrez**, Ramsés Mena, Matteo Ruggiero. A time dependent Bayesian nonparametric model for air quality analysis. *Computational Statistics and Data Analysis*. *95: 161-175* , 2016
7. **Luis Gutiérrez**, Eduardo Gutiérrez-Peña, Ramsés Mena. Bayesian nonparametric classification for spectroscopy data. *Computational Statistics and Data Analysis*. *78: 56-68*, 2014
8. **Luis Gutiérrez** and Fernando Quintana. Optimal information in authentication of food and beverages. *Statistical Modelling*. *14(2): 179-204*, 2014
9. **Luis Gutiérrez** and Fernando Quintana. Multivariate Bayesian semiparametric models for authentication of food and beverages. *The Annals of Applied Statistics*. *5(4): 2385-2402*, 2011
10. **Luis Gutiérrez**, Fernando Quintana, Dietrich von Baer, Claudia Mardones. Multivariate Bayesian discrimination for varietal authentication of Chilean red wines. *Journal of Applied Statistics*; *38 (10): 2099-2109*, 2011
11. Carola Vergara, Dietrich von Baer, Claudia Mardones, **Luis Gutiérrez**, Isidro Hermosín-Gutiérrez, Nancy Castillo-Muñoz. Flavonol profiles for varietal differentiation between Carménère and Merlot wines produced in Chile: HPLC and Chemometric analysis. *Journal of the Chilean Chemical Society*. *56(4): 827-832*, 2011
12. Claudia Mardones, Dietrich von Baer, Jorge Silva, Alex Ruff, **Luis Gutiérrez**, Alex Berg. Tribromophenol and pentachlorophenol uptake from sawdust to horticultural products. *Food Additives and Contaminants*. *26 (10) 1362-1371*, 2009
13. Gonzalo Mendoza, **Luis Gutiérrez**, Karla Pozo-Gallardo, Daniel Fuentes-Ríos, Roberto Urrutia and Ricardo Barra. Polychlorinated biphenyls (PCBs) in mussels along the Chilean Coast. *Environmental Science and Pollution Research*. *13: 67-74*, 2006
14. Maria, A. Rubio, Natalia Zamorano, Eduardo Lissi, Alicia Rojas, **Luis Gutiérrez**, and Dietrich von Baer. Volatile carbonylic compounds in downtown Santiago, Chile. *Chemosphere*. *62: 1011-1020*, 2006
15. Claudia Mardones; Maria Antonieta Hitschfeld; Alejandra Contreras; Karla Lepe; **Luis Gutiérrez** and Dietrich von Baer. Comparison of shikimic acid determination by capillary zone electrophoresis with direct and indirect detection with liquid chromatography for varietal differentiation of red wines. *Journal of Chromatography A*, *1085, 285-292*, 2005.
16. Dietrich von Baer, Claudia Mardones, **Luis Gutiérrez**, Glenn Hofmann, J. Becerra, Antonieta Hitschfeld, Carola Vergara. Varietal authenticity verification of Cabernet sauvignon, Merlot and Carménère wines produced in Chile by their anthocyanin, flavonol and shikimic acid profiles. *Bulletin O.I.V.*, vol 78, n° 887-888, pp. 45-57, 2005

MANUSCRIPTS IN  
PREPARATION OR  
UNDER REVIEW

1. Luz Adriana Pereira, Daniel Taylor-Rodríguez, **Luis Gutiérrez** (2018). A Bayesian nonparametric testing procedure for paired samples
2. Luz Adriana Pereira, **Luis Gutiérrez**, Daniel Taylor-Rodríguez, Ramsés Mena. Bayesian nonparametric hypothesis testing for longitudinal data analysis.
3. Daniel Ayala, Ramsés Mena, Leonardo Jofré, **Luis Gutiérrez**. Bayesian inference in infinite dimensional phase type distributions
4. Victor Saragoni and **Luis Gutiérrez**. Modeling the effects of minimal post-PCR enhancements on the probability of allele recovery from pristine low template DNA dilutions.
5. Miguel De Carvalho, Andrés Barrientos, **Luis Gutiérrez**. Predictor-Dependent Inequality Modelling: Linking income and consumption inequality

BOOK CHAPTERS

1. Carola Vergara, Dietrich von Baer, Claudia Mardones and **Luis Gutiérrez**. Overview of chemical markers for varietal authentication of red wines. Progress in authentication of food and wine (2011). Chapter 7. *American Chemical Society Symposium Series 1081*
2. Dietrich von Baer, Claudia Mardones, **Luis Gutiérrez**, Glenn Hofmann, Antonieta Hitschfeld and Carola Vergara. Anthocyanine, flavonol and shikimic acid profiles as a tool to verify varietal authenticity in red wines produced in Chile. Authentication of food and wine (2007) Chapter 15. *American Chemical Society Symposium Series 952. Washington DC*

GRANTS

1. PCI REDI170094. 2018–2019. Inferencia Bayesiana en distribuciones tipo fase: Nuevos desarrollos y aplicaciones
2. FONDECYT 11140013. 2014–2017. Bayesian approaches for statistical shape analysis: New developments and applications. Principal Investigator
3. CONACyT (Mexico) project 241195. 2015–2018. Bayesian nonparametric statistics for complex data. Co-Investigator
4. IN106114- 3. 2014–2016. Análisis Bayesiano Aplicado. “Programa de Apoyo a Proyectos de Investigación e Innovación Tecnológica (PAPIIT) UNAM, México”. Co-Investigator
5. U-INICIA 02/12A. 2012–2014. Hierarchical parametric and nonparametric Bayesian classification models, new developments and applications to high dimensional data. University of Chile. Principal Investigator
6. FONIS SA12I2046. 2013–2014. Análisis espacio-temporal de morbilidad/mortalidad en Chile: Efecto de megafuentes en áreas pequeñas. Co-Investigator

TEACHING AND  
ACADEMIC DUTIES

Teaching:

**At Pontificia Universidad Católica de Chile**

- Advanced Computational Statistics, 2019. *PhD in Statistics*
- Advanced Statistical Methods I, 2017, 2018, 2019. *PhD in Statistics*
- Survival Analysis, 2016, 2017, 2018 *Bachelor in Statistics*

### At Universidad de Chile

- Mathematics for Biostatistics, 2014. *Master in Biostatistics*
- Statistical Reasoning, 2014. *Master in Biostatistics*
- Linear Algebra, 2011, 2012, 2013, 2014. *Master in Biostatistics*
- Biostatistics, 2012. *Master in Medical Informatics*
- Multivariate Analysis, 2010, 2011, 2012, 2013. *Master in Biostatistics*
- Computational Statistics, 2010, 2011. *Master in Biostatistics*
- Biostatistics, 2011, 2012, 2013, 2014, 2015. *Bachelor in Medicine*

### At Pontificia Universidad Católica de Chile

- Computational Statistics, 2008, 2009, 2010. *Master in Statistics*
- Exploratory Data Analysis, 2008, 2009. *Bachelor in Statistics*

### Master Level Supervisions:

1. Seomara Palominos Gamba. Awarded: November 2018. Inferencia Bayesiana en el modelo ETAS.
2. Madelaine Acosta Donoso. MSc. Statistics. Awarded: November 2018. Inferencia Bayesiana en Distribuciones tipo fase.
3. María Constanza Prado. MSc. Statistics. Awarded: January 2018. Thesis: Análisis estadístico de la forma de objetos utilizando superficies cerradas.
4. Ignacio Rossi von Mühlenbrock. MSc. Statistics. Awarded: November 2017. Thesis: La distribución normal proyectada para landmarks tridimensionales
5. Claudio Galleguillos Cruz. MSc. in Biostatistics. Awarded: March 2017. Thesis: Efecto de las termoeléctricas sobre la incidencia de enfermedades cardiovasculares en Chile 2001-2010: Un enfoque Bayesiano de estimación.
6. Hugo Andrades Aguilera. MSc. in Biostatistics. Awarded: July 2015. Thesis: Statistical Shape Analysis: A Bayesian approach applied to brain images (in Spanish)
7. Sandra Pardo Vargas. MSc. in Biostatistics. Awarded: June 2014. Thesis: Bayesian analysis of the effect of thermoelectric plants on the cardiovascular mortality at county level in Chile 2000–2010. (in Spanish)
8. Francisco Marro. MSc. in Biostatistics. Awarded: December 2012. Thesis: Bayesian semi-parametric model for spectroscopy data: applications in food authentication. (in Spanish)

Administrative duties:

- Member of the evaluation committee CONICYT Program of International Cooperation PCI, mathematical area 2018 – present
- Member of the evaluation committee CONICYT scholarships, mathematical area, 2015 –present
- Member of the scientific committee, “Jornadas Nacionales de Estadística”, 2015
- Member of the Biostatistics Master committee, University of Chile, 2014–present
- Member of the Public Health Ph.D. committee, University of Chile, 2012–2014
- Member of the research committee, School of Public Health, University of Chile, 2012–2014

CONFERENCE  
PRESENTATIONS  
AND SEMINARS

Conferences:

- International Society for Bayesian Analysis World Meeting, ISBA 2016 Sardinia Italy, 13–17 June, 2016 Poster
- 10th Conference on Bayesian Nonparametrics, Raleigh, NC, USA June 22–26, 2015, Poster
- XI Congreso Latinoamericano de Sociedades de Estadística, La Serena Chile, 20–23 Octubre 2014, Invited Speaker
- International Society for Bayesian Analysis World Meeting, ISBA 2014 Cancún México, 14–18 July, 2014 Poster
- XL Jornadas Nacionales de Estadística. 23-25 Octubre 2013. Valparaíso, Chile, Contributed Talk
- 9th Conference on Bayesian Nonparametrics, Amsterdam, The Netherlands, June 10–14 2013, Poster
- XI Jornadas Nacionales de Bioestadística, Enero 2013, Concepción Chile, Contributed Talk
- III Latin–American Meeting on Bayesian Statistics COBAL, 23–27 Octubre 2011. Pucón Chile, Poster
- IX Congreso Latinoamericano de las Sociedades de Estadística, Octubre 2010, Viña del Mar, Chile, Contributed Talk

Invited Seminars:

- Summer School of Probability and Statistics at CIMAT, July 2016
- Department of Probability and Statistics, IIMAS-UNAM, February 2016
- Department of Statistics, ITAM, México, November 2015
- Faculty of Sciences, UNAM, México, August 2015
- Department of Statistics, PUC, Chile, September 2014
- Department of Probability and Statistics, IIMAS-UNAM, November 2012
- Department of Statistics, PUC, Chile, June 2010

#### AWARDS

- Honorable Mention, Francisco Aranda Ordaz Award for an excellent PhD thesis in statistics, March 2012. Latin America Society of Probability and Mathematical Statistic
- University of Concepción award, the best student of 1999 class Forestry Engineering studies

#### SCHOLARSHIPS

- “Cátedra Extraordinaria” IIMAS–UNAM, Mexico. 2015–2016
- BECAS CHILE Postdoctoral Research Scholarship. 2015–2016
- “Becas Iberoamérica”, Young Academics and Researchers, Santander Universidades 2012
- CONICYT (National Commission for Scientific and Technological Research), PhD thesis scholarship. 2010
- CONICYT (National Commission for Scientific and Technological Research), scholarship for Ph.D. studies in Chile. 2006–2010
- Universidad de Concepción, scholarship for Master studies, 2001–2003
- Universidad de Concepción, scholarship for bachelor studies, 1996–2000

#### COMPUTER SKILLS

- MATLAB, R, Fortran, C++
- SAS, STATA, MAPLE
- L<sup>A</sup>T<sub>E</sub>X, B<sub>I</sub>B<sub>T</sub>E<sub>X</sub>, T<sub>E</sub>X
- Linux, OS X, Windows

#### MEMBERSHIPS

- International Society for Bayesian Analysis
- International Biometric Society
- Sociedad Chilena de Estadística