

# Javier Zapata

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**OBJECTIVE:** Finding a challenging Quantitative Analyst position to exploit my knowledge in finance and machine learning.

## Education

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- **University of California, Santa Barbara** **Santa Barbara, CA**  
*Ph.D. (c) & M.A. in Statistics and Applied Probability (GPA: 3.95)* *Sep 2015 - (Aug 2020)*  
**Doctoral Research:** High-Dimensional Functional Graphical Models for Multivariate Gaussian Processes  
Developed a scalable model to learn partial correlations of a high-dimensional Gaussian process. Areas of application include neuroimaging, portfolio optimization and covariance estimation. Advisor: Professor Sang-Yun Oh
- **University of Chile** **Santiago, CHILE**  
*Professional Degree & B.Eng.Sc. in Industrial Engineering (GPA 4.00)* *2005-2010*

## Experience

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- **Western Asset Management** **Pasadena, CA**  
*Quantitative Analyst Intern* *Jun 2019 - Aug 2019*  
Designed and implemented an anomaly detection method for fixed-income risk analytics. The approach combines machine learning with price sensitivity equations, and includes interactive visualizations for results interpretability. The solution expands and refines the current rule-based practices used for over 120K bonds in 33 currencies.
- **SimpliRoute** **Mountain View, CA**  
*Data Science Intern* *Jul 2017 - Sep 2017*  
Improved the company's analytics by implementing a distributed random forest predictor of the discharging time of multi-stop delivery route plans integrating mobile GPS and delivery schedule data.
- **Ministry of Finance, Chilean Sovereign Wealth Fund** **Santiago, CHILE**  
*Quantitative Researcher* *Mar 2012 - Dec 2014*  
Enhanced productivity by developing an information database system for report automation and data analytics.  
Implemented GARCH and VAR time series to forecast volatility and interaction between selected exchange rates.  
Performed several studies for the Financial Committee of the funds including simulation studies to analyze the optimal size of the Pension Reserve Fund as well as an oil price risk hedging program for the Chilean government.
- **Fischer & Zabala, Asset Management** **Santiago, CHILE**  
*Quantitative Financial Analyst* *Mar 2011 - Dec 2011*  
Developed a credit risk model for a financial mortgage-backed security deal for the Chilean pension funds.
- **University of California, Santa Barbara** **Santa Barbara, CA**  
*Teaching Assistant & R\Shiny Web Developer* *Sep 2015 - Current*  
Teaching Assistant for: Stochastic Processes, Time Series, Big Data Analytics, Data Science, and Statistical Machine Learning.  
Developed a repository of interactive web-based learning applications for probability and statistics undergraduate courses.

## Publications

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- J. Zapata, S. Oh & A. Petersen. Partial Separability and Functional Graphical Models for Multivariate Gaussian Processes. *Journal of the American Statistical Association (UNDER REVIEW)*
- J. Zapata. **fgm** R-package for Partial Separability and Functional Graphical Models for Multivariate Gaussian Processes (2019)
- J. Zapata & A. Cifuentes. On the Stability of Synthetic CDO Credit Ratings. *International Finance, Vol. 19, No. 2, June, 2016.*

## Skills

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- **Scientific Computing:** R, Python, Matlab.
- **Big Data Computing & Databases:** Apache Spark, MapReduce, SQL, PostgreSQL, Bloomberg.
- **Web Development & Visualization Libraries:** R\Shiny, HTML, Ggplot2, Matplotlib, Plotly, Altair
- **Languages:** English, Spanish.
- **Personal Interests:** Weightlifting and hiking.