Javier Zapata

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Education

- **University of California, Santa Barbara** **Santa Barbara, CA**
  Ph.D. (c) & M.A. in Statistics and Applied Probability (GPA: 3.95) *Sep 2015 - (Sep 2020)*
  Doctoral Research: High-Dimensional Functional Graphical Models for Multivariate Gaussian Processes
  Develop covariance estimation methods for multivariate Gaussian processes. Areas of application include multi-task learning, experimental design, portfolio optimization and functional brain connectivity. Advisor: Prof. S. Y. Oh
- **Universidad de Chile** **Santiago, CHILE**
  Professional Degree & B.Eng.Sc. in Industrial Engineering (GPA 4.00) *2005 - 2010*

Experience

- **Western Asset Management (Quantitative Analytics and Risk Modeling Group)** **Pasadena, CA**
  Quantitative Analyst Intern *Jun 2019 - Aug 2019*
  - Designed and built an interpretable anomaly detection for timely detection of defective risk analytics from financial data vendors. The solution robustifies downstream systems used for trading and analytics for over 120K bonds in 33 currencies; it refined a fixed rule-based spreadsheet into a daily idiosyncratic variation score with an interactive time-series visualization tool.
- **SimpliRoute (Data Science Group)** **Mountain View, CA**
  Data Science Intern *Jul 2017 - Sep 2017*
  - Implemented an ML predictor for a multi-stop delivery route planner platform, combining mobile GPS and delivery schedule data. The solution was built in Python and reduced forecast error from 40% to below 15% for the ten largest customers.
- **University of California, Santa Barbara (Dept. of Statistics)** **Santa Barbara, CA**
  R\Shiny Web Developer *Sep 2018 - Mar 2019*
  - Designed and developed five interactive web-based learning applications for data science courses. I built the front-end with Shiny, the visualizations with Plotly and the analytics with R. The apps were incorporated in the coursework of three classes.
- **University of California, Santa Barbara (Dept. of Statistics)** **Santa Barbara, CA**
  Teaching Assistant *Sep 2015 - Current*
  - Teaching Assistant for: Stochastic Processes, Time Series, Big Data Analytics, Data Science, and Statistical Machine Learning.
- **Ministry of Finance (Chilean Sovereign Wealth Fund)** **Santiago, CHILE**
  Quantitative Researcher *Mar 2012 - Dec 2014*
  - Owned and built a streamlined SQL based data ingestion system to store daily transactions reports and automate the production of periodic reports of the funds. Analysts manual labor was reduced from days to a couple of hours per week for periodic tasks.
  - Performed time series analysis to improve the investment policy, risk metrics and rebalancing guidelines of the fund. Presented and discussed results with the executive board of the fund. Exposure to major liquid asset classes in fixed-income and equities.

Publications

- J. Zapata, S. Oh & A. Petersen. Sparse Differential Functional Gaussian Graphical Models. *In Progress (2020)*
- J. Zapata, S. Oh & A. Petersen. Partial Separability and Functional Graphical Models for Multivariate Gaussian Processes. *Biometrika (Under Review). Presented at the 3rd International Conference on Econometrics and Statistics (EcoSta 2019)*
- 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

- **Scientific Computing:** Python, R, C++. Python Libraries: Pandas, NumPy, SciPy, Scikit-Learn, Keras, Tensorflow, h20.
- **Big Data Computing & Databases:** Apache Spark, SQL.
- **Web Development & Visualization Libraries:** R\Shiny, Plotly, HTML, Ggplot2 and Matplotlib
- **Languages:** English and Spanish. **Personal Interests:** Weightlifting, hiking, kayaking and shooting beach sunsets.