José Bayoán Santiago Calderón

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Citizenship: United States of America   Personal Website: jbsc.netlify.app

Education

2019	PhD Economics	Claremont Graduate University
2015	MA Economics	Claremont Graduate University
2014	BA Economics	Southwestern University

Fields of Research

Computational Economics, Program Evaluation, Data Science, Pharmacokinetics

Skills

Econometrics, Data Science, Machine Learning, Julia, R, Structured Query Language (SQL), Natural Language Processing (NLP), Text Mining, Social Network Analysis (SNA), Agent-Based Modeling (ABM), Geographic Information Systems (GIS), Containers, Slurm, Cloud Computing, REST/GraphQL API

Appointments and Employment

Postdoctoral Research Associate

Social & Decision Analytics Division
Biocomplexity Institute & Initiative   2019 – Current
University of Virginia

My main projects include work on projects with the National Center for Science and Engineering Statistics (NCSES) and the Defense Advanced Research Projects Agency (DARPA). My NCSES work includes a project on measuring the scope and impact of open source software through mining software repositories, applying cost-based valuation, sectoring contributions through a national accounts framework, and social network analysis on collaboration networks. Another NCSES project includes understanding the skilled-technical workforce pathways and impact of non-degree credentials using online job advertisements and resumes. My third main project is DARPA's Computational Simulation of Online Social Behavior (SocialSim) challenge developing platforms for high-fidelity computational simulation of online social behavior and understanding the life-cycle of narratives on social media. I also support our team's infrastructure working closely with Research Computing to ensure our team has access and knowledge to effectively use available computing resources for our research (e.g., high performance computing). Lastly, during the Data Science for the Public Good Young Scholars summer program, I co-teach some of the lessons during the training as well as participate or lead various projects.

ZiF Cooperation Group Member

Universität Bielefeld
Statistical Models for Psychological & Linguistic Data Group   2020 – Current

Participated in the Workshop II on Mixed Models in the Julia Programming Language convened by Reinhold Kliegl (Potsdam, GER) and Douglas Bates (Madison, USA). The activities included hackatons, presentations, and workshops we offered to researchers working with psycholinguistics data.

Statistics Consultant and Software Developer

Pumas-AI   2018 – Current

Pumas is a Julia-based platform for pharmaceutical modeling and simulation. As a developer, I contributed to the module for data parsing and design data specification (i.e., parsing industry standard data, describing subjects, covariates, dosage regimens, events, observations, and population) and developed the module for conducting bioequivalence analysis. I also support the consulting services branch of the company.

Lead Developer / Maintainer

QuantEcon   2018 – Current

I am a maintainer for the QuantEcon.jl package and lectures in quantitative economics with Julia. Contributed to the redesign and update of the code and lectures from Julia v0 to v1.

Data Scientist and Software Developer

Residential Energy and Water Intelligence (Res-Intel)   2016 – 2018

Conducted a program evaluation of the California Advanced Home Program (CAHP) commissioned by Southern California Edison and developed the module for residential benchmarking. The work was performed using R and SQL. It included working with utility account billing data (e.g., grid, gas, solar, water), property data, and climate and weather data from the Global Historical Climate Network for the state of California. The module included an adapted version of the Energy Star Portfolio Manager methodology.

Research Assistant

Center for Neuroeconomics Studies   2014 – 2016

Helped design and run experiments as well as collect and clean data for several neuroeconomics projects. My tasks included advertisement, recruitment, staff management, supervision, training, drug administration, payments, storage of samples, and data cleaning. I worked with tools such as z-Tree for computer experiments as well as eye tracking, electroencephalography (EEG), electrocardiogram (ECG), and electrodermal activity (EDA/GSR) through BIOPAC and iMotion.

Publications

José Bayoán Santiago Calderón. 2020. "Econometrics.jl." *Proceedings of the JuliaCon Conferences* 1 (1): 38. DOI: 10.21105/jcon.00038

Presentations

José Bayoán Santiago Calderón. 2019. *Using Julia for Dissemination of Information About the General Election in Puerto Rico.* Government Advances in Statistical Programming (GASP!) Workshop. Virtual - Zoom, November 6, 2019. https://sites.google.com/view/gasp2020/agenda

José Bayoán Santiago Calderón, Brandon Lee Kramer, Gizem Korkmaz, Carol Robbins, Aaron Schroeder, and Keller Sallie. 2020. *Measuring the Cost and Impact of Open Source Software Innovation on GitHub.* Federal Committee on Statistical Methodology (FCSM) Computational Statistics and the Production of Official Statistics (CSPOS) Webinar on Blended Data. Washington, DC, May 1, 2020. https://bit.ly/3gzBctW

José Bayoán Santiago Calderón, Vicki Lancaster, and Sarah McDonald. 2020. *Pathways to Jobs in the Skilled Technical Workforce.* Accepted to the Federal Committee on Statistical Methodology (FCSM) Research and Policy Conference but not presented because of COVID-19. Washington, DC, April 14, 2020

Carol Robbins, Gizem Korkmaz, José Bayoán Santiago Calderón, Daniel Chen, Aaron Schroeder, Claire Kelling, Stephanie S. Shipp, and Sallie Keller. 2019. *Open Source Software as Intangible Capital: Measuring the Cost and Impact of Free Digital Tools.* Government Advances in Statistical Programming (GASP!) Workshop. Washington, DC, September 23, 2019. https://youtu.be/xNQr9kCDJvo?t=2843

Carol Robbins, Gizem Korkmaz, José Bayoán Santiago Calderón, Claire Kelling, Stephanie S Shipp, and Sallie Keller. 2018. "The Scope and Impact of Open Source Software: A Framework for Analysisand Preliminary Cost Estimates." In *35th International Association for Research on Income and Wealth (IARIW) General Conference,* 2A5. http://www.iariw.org/c2018copenhagen.php

Carol Robbins, Gizem Korkmaz, José Bayoán Santiago Calderón, Claire Kelling, Stephanie Shipp, and Sallie Keller. 2018. "Open Source Software as Intangible Capital: Measuring the Cost and Impact of Free Digital Tools." In *The Sixth IMF Statistical Forum: Measuring Economic Welfare in the Digital Age: What and How?,* III1. International Monetary Fund (IMF). https://www.imf.org/en/News/Seminars/Conferences/2018/04/06/6th-statistics-forum

José Bayoán Santiago Calderón, Cong Cong, Calvin Isch, Eliza Tobin, Brandon Kramer, Aaron Schroeder, and Gizem Korkmaz. 2019. *Measuring the Universe of Open Source Software.* Data Science for the Public Good Program Symposium. Arlington, VA, August 9, 2019. https://bit.ly/2y7ryyD

José Bayoán Santiago Calderón, Kateryna Savchyn, Victoria Halewicz, Jessica Keast, Aaron Schroeder, and Gizem Korkmaz. 2019. *Economic And Social Impact Of Arlington Restaurant Initiative.* Data Science for the Public Good Program Symposium. Arlington, VA, August 9,

2019. https://bit.ly/3bDVjWh

José Bayoán Santiago Calderón, Keren Chen, Hannah Brinkley, Eirik Iversen, Daniel Chen, and Gizem Korkmaz. 2018. *Measuring the Cost and Value of Open Source Software.* Data Science for the Public Good Program Symposium. Arlington, VA, August 10, 2018. https://bit.ly/2VIo8vi

José Bayoán Santiago Calderón, Hannah Brinkley, Alexa Nosal, Kelsey McMahon, Megan Grondine, Aaron Schroeder, and Gizem Korkmaz. 2018. *Evaluating the Impact of the Arlington Restaurant Intitiative on Alcohol-Related Crimes in Clarendon.* Data Science for the Public Good Program Symposium. Arlington, VA, August 10, 2018. https://bit.ly/2Yc78zc

Yeshanew Belayneh, José Ruiz, Julieth Sáenz, and José Bayoán Santiago Calderón. 2014. *A Child's Well-Being: Food Insecurity and Antenatal Care (Nepal).* AEA Sumer Mentoring Pipeline Conference. Albuquerque, NM, July 26, 2014. https://bit.ly/3cYXEeR

Certificates

2019 Preparing Future Faculty Certificate in College Teaching
2017 Statistics with R, a 5-course specialization by Duke University on Coursera
2017 Machine Learning, a 4-course specialization by University of Washington on Coursera
2016 Fundamentals of Computing, a 7-course specialization by Rice University on Coursera
2015 Data Science, a 9-course specialization by Johns Hopkins University on Coursera

Teaching (Assistant)

2016 Advanced Research Methods (Graduate), Michigan State University
2015 Principles of Microeconomics (AP), Johns Hopkins University
2014 Intermediate Microeconomics (Undergraduate), Southwestern University
2014 Principles of Economics (Undergraduate), Southwestern University

Service

- Reviewer the Proceedings of the JuliaCon Conferences (JCON)
- Subreviewer: International Conference on Autonomous Agents and Multiagent Systems
- Subreviewer: Computational Social Science Annual Conference
- Served as Product Advisor for The Opportunity Project
- Served as a Mentor for Hacking for Human Rights: a Hackathon to Support Save the Children's Migration and Displacement Initiative

References

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