Brayan V. Ortiz

Contact:

bvortiz117@gmail.com
brayanvo@amazon.com
https://brayano.github.io/brayanortiz/
http://github.com/brayano/

Summary:

Highly accomplished and results-driven Data Science and Operations Research leader with a Ph.D. in Biostatistics and 12+ years of research and applied science experience (across Amazon, academia, and consulting), directing the development and implementation of cutting-edge data science solutions within complex supply chain operations. Proven ability to build and lead high-performing teams (3+ years), drive strategic initiatives, and deliver significant business impact through advanced modeling, optimization, and machine learning techniques. Expertise in translating complex data insights into actionable strategies for senior leadership.

Education:

University of Washington, Seattle, WA
- Ph.D., Biostatistics, 2018

California State University Fullerton, Fullerton, CA
- B.A. Mathematics, (Probability and Statistics Concentration), 2013

Professional and Research Experience:

Amazon, Modeling and Optimization within Supply Chain Optimization Technologies, Seattle, WA
Modeling & Optimization, July 2018 - present, Senior Applied Scientist, Frontline Manager
- Led statistical modeling and research for operations, including network design and labor planning.
- Architected and built production pipelines using AWS products.
- Spearheaded the development and productionization of next-generation solutions (e.g., graph and reinforcement learning) for operations.
- Directed cross-functional teams of 2-6 scientists and engineers in large-scale projects, such as network redesign and new technology global validation.
- Guided strategic planning and decision-making, including presentations and negotiations with senior leadership.
- Developed instructional material and training for internal planning tools.
- Designed experiments for piloting new operational processes using classical statistical testing and generative AI for scaling.
- Mentored data scientists, research scientists, applied scientists, business intelligence engineers, and data engineers.
- Software: `Python (Scikit, Numpy, Pandas, PyTorch, TensorFlow)`, `FICO Xpress`, `SQL`, `R`, Generative AI

Centro de Investigaciones de Cancer en Sonora (Sonora Cancer Research Center), Seattle, WA
Adjunct Professor of Biostatistics, Biostatistics, 2015 - 2019
- Led a team of analysts and clinical immuno-oncologists in the design and implementation of statistical methodologies for identifying biomarkers associated with cancer outcomes, ensuring alignment with FDA regulations and other regulatory entities in Mexico.
- Ran statistical/survival analyses and power analyses, using regression and simulation-based methods.
- Software: `R` Statistical Software

University of Washington, Department of Biostatistics, Seattle, WA
Research Assistant, Tim Thornton under NIH Statistical Genetics Training Grant, 2013-2014

- Ran principal component analyses to detect population structure such as admixture in genome wide association studies.
- Software: `R` Statistical Software

Research Assistant, Noah Simon, 2014-2015, 2017-2018

- Develop nonparametric penalized regression methodology, which included describing/proving theoretical properties and creating alternating direction method of multipliers solver.
- Software: `Python` (`CVXPY, CVXOPT, SciPy, NumPy, Gurobi, CPLEX`), `C++` (`Armadillo`), `R (Rcpp, RcppArmadillo)`

Research Assistant, Jim Hughes, 2015-present

- Develop Bayesian methodology incorporating information from multiple sources to predict pill-taking adherence in HIV prophylaxis clinical trials.
- Software: `R, OpenBUGS, JAGS, STAN`

Teaching Assistant, Biostatistics 310 with Lyndia Brumback, 2017

- Provided supplemental lectures on topics such as data description, study design, screening, estimation hypothesis testing, categorical data analysis, and regression.
- Job duties included lecturing, grading, and preparing lecture slides.

Teaching Assistant, Summer Institute in Statistics for Big Data (SISBID), Visualization of Biomedical Big Data with Dianne Cook and Heike Hoffman

- Provided support during lectures on structured development of static and interactive graphics using `ggplot2` in `R`, especially in the context of exploring big data.

Amazon, Modeling and Optimization within Supply Chain Optimization Technologies, Seattle, WA
Research Scientist Intern, Andrew Bruce and Chunyi Wang, June - September 2017

- Collaborated with non-statisticians to define business/financial deliverables followed by collaborations with senior statisticians determining appropriate modeling goals
- Pulled, cleaned, and prepared data to be used in modeling
- Built predictive models to be deployed at a large scale
- Software: `R, Python` (`Pandas, XGBoost`), `SQL`

California State University Fullerton, Department of Mathematics, Fullerton, CA *Collaborator with Mori Jomshidian, NIH Funded MARC Program, 2011-2013*

- Built logistic regression model, which predicts presence of multiple sclerosis based on performance in cognitive tasking tests.
- Software: `R`

University of Wisconsin, Madison, Department of Biostatistics, Madison, WI *Collaborator with Sushmita Roy, NSF Funded IBS-SRP, 2012*

- Ran genome-wide association study to determine association between Alzheimer's cognitive disease and single-nucleotide polymorphisms (SNPs).
- SNP data ($>$ 15 gigabytes) collected from Alzheimer's Disease Neuro-Imaging database.
- Software: `PLINK, Python`

Honors, Awards, Scholarships:

- OpsTech Science Fair Grand Prize, "Think Big Award," with Sapphire Manthorpe (co-presenter), 2017
- Trainee, NIH Statistical Genetics Training Grant, University of Washington, 2013-2016
- Minority Access to Research Careers (MARC) Fellowship (NIH), 2011-2013
- CSUF Natural Sciences and Mathematics Symposium Competition Winner, 2012
- SACNAS, Outstanding Poster in Statistics, 2012
- CSUF Special Recognition for Undergraduate Research, 2013
- Joint Mathematics Meeting, San Diego, Outstanding Poster, 2013

Publications:

- Ortiz, B. and A. Bruce, (2024). Experimental Design and Analysis for Scanless Stow in AMZL Stations. Consumer Science Summit 2024. Internal.
- Hughes, J., B. Williamson, C. Krakauer, G. Chau, B. Ortiz, J. Wakefield, C. Hendrix, K. Amico, T. Holtz, LG Bekker, & R. Grant. Combining Information to Estimate Adherence in Studies of Pre-Exposure Prophylaxis for HIV Prevention: Application to HPTN 067. Statistics in Medicine. 2022 Mar 15;41(6):1120-1136. doi: 10.1002/sim.9321. Epub 2022 Jan 25. PMID: 35080038; PMCID: PMC8881405.
- Ortiz, B. and A. Sinha, (2022). Using Image Transformations to Learn Structure. https://arxiv.org/abs/2112.03419 *Under Review*
- Ortiz, B. and N. Simon, (2022). Mesh-Based Solutions for Nonparametric Penalized Regression. https://arxiv.org/abs/2112.0 *Under Review*
- Soni, A., Golari, M., Ortiz, B., & Zheng, Da, (2022). Graph Representation Learning for Outbound Transportation Network. *In Submission*
- Ortiz, B., M. Jamshidian, and A. Khatoonabadi, (2013). A Statistical Approach to Validate a Cognitive Test for Multiple Sclerosis. Dimensions. Vol. 15. Pp. 105-114
- Ortiz, B., S. Roy, and R. Atlas, (2012). Identification and Characterization of Predictive Genomic Markers in Alzheimer's Disease. IBS-SRP Journal. pp. 121-125

Conferences, Workshops, and Keynotes

- Amazon Analyticon EU/EA, Workshop. September 2024. "Applying Statistical Analysis for Operational Excellence: Experimental Design and Analysis in Supply Chain Operations."
- International Conference in Machine Learning (ICML) 2024, Workshop Chair. July 2024. "LatinX in AI Workshop."
- NeurIPS 2023, Workshop Chair. December 2023. "LatinX in AI Workshop: Mentorship Program."
- Amazon Analyticon NA, Keynote. November 2023. "Statistical Design and Analysis of Pilot Studies in the Fulfillment Network."
- Amazon Machine Learning Conference, Workshop. October 2023. "Statistical Design and Analysis of Pilot Studies in the Fulfillment Network."
- Operations Technology Science Fair (OpsTech Science Fair), Amazon Operations Research. July 2017. Poster presentation. Amazon Confidential.
- BayesComp 2018, International Society for Bayesian Analysis. March 2018. Poster presentation. "Mesh Based Solutions for Nonparametric Regression."
- Society for the Advancement of Chicanos and Native Americans in Science (SACNAS). October 2019. Keynote Speaker,"Network Design and Optimization in the Outbound Network."
- University of Washington, Department of Biostatistics, Master's Capstone Seminar. January 2021. "Biostatistics for Industry." *current mentor for program*
- Senior Operations and Research Workshop (SOAR 2021). October 2021. Co-founder, organizer, moderator, and speaker. Amazon Confidential.