Justin Williams

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EDUCATION

University of California, Los Angeles (UCLA) *2020*

Ph.D. – Biostatistics

Dissertation: "Methods for Estimating Causal Effects for Multivariate Continuous Exposure"
Advisor: Catherine Crespi
Committee: Tom Belin, Hua Zhou, May Wang

2016

M.S. - Biostatistics

Thesis: "Bayesian Hierarchical Spatial Analysis of Autism Spectrum Disorder Services in the Los Angeles Unified School District"
Advisor: Rob Weiss

Boston College

B.A. – Mathematics 2013

RESEARCH EXPERIENCE

Graduate Student Researcher *2015 - 2019*

Connie Kasari Lab

- Constructed Bayesian multi-level hierarchical model incorporating spatial random effects
- Developed longitudinal data visualization tools available in GitHub R package (`ggplot.spaghetti`)
- Clinical trial longitudinal analysis using mixed effects and generalized estimating equations
- Adjusted for empirical trends using zero-inflated and hurdle models with count outcomes
- Automated analysis for inter rater reliability
- Data management and data cleaning for multisite clinical trial database
- Co-authored multiple papers as primary statistician

PROFESSIONAL EXPERIENCE

Quantitative Analyst *August 2020 – Present*

Los Angeles Dodgers

Product Development Biostatistics Intern *Summer 2019*

Genentech-South San Francisco, CA

- Designed software to simulate longitudinal differential abundance for microbiome: `microbiomeDASim`
  - Flexibly specify form of the trend over time including polynomial, oscillating, or hockey stick trends
  - Define desired sample size, number of repeated measures, and signal:noise ratio
  - Multiple choices for longitudinal dependence including: AR(1), compound, or independent
- Compared multiple methods for estimating differential abundance over time

Biostatistics R&D Intern *Summer 2018*

Alcon-Fort Worth, TX

- Developed methodology for parameter estimation of censored data from truncated normal distribution
- Investigated available methods for estimation with left censoring using R and SAS
- Produced functions and macros to simulate data and calculate bias metrics
- Applied methods to estimate parameters for historical clinical trial data

Predictive Analytics Intern-Business Intelligence Team *Summer 2016*

Ingram Micro-Irvine, CA

- Illustrated regional product demand for products to inform warehouse stocking decisions
- Pulled purchasing and warehouse transaction information from servers via SQL
- Engineered product similarity scores based on feature list with mixed scale variables

TEACHING EXPERIENCE

Special Reader: Computer Management of Health Data *Sep '16 – Dec '16*
UCLA, Biostatistics Department Student Evaluation: 9/9

- Taught data management tools with SAS to 23 first-year Biostatistics graduate students
- Introduced tools for creating randomization schemes and generating reproducible data

Special Reader: Basic Biostatistics *Jan '16 – Mar '16*
UCLA, Biostatistics Department Student Evaluation: 8.89/9

- Led weekly lab sections using Stata on topics such as linear regressions, ANOVA, logistic regression, and non-parametric tests
- Designed and administered discussion sections weekly
- Graded homework and lab assignments

SOFTWARE SKILLS

R (coursework/teaching/research/work/preferred)
SAS (internship/coursework/teaching/work)
Julia (coursework)
Git (*GitHub*, personal; *GitLab*, work)
SQL (*MySQL & PostgreSQL* work experience)
Stata (coursework/teaching)
Python (research)
HPC (high performance computing on cluster)
AWS (*EC2, S3, ERS*)

RESEARCH INTERESTS

-Causal Inference
-Bayesian Analysis
-Longitudinal Analysis
-Spatial Modeling
-Machine Learning
-Trial Design

PUBLICATIONS

Academic Journals

(1) Melamed, K.H, Williams, J., Wang, X., Hu S., Nguyen C., Cui, J., & Deng, J.C. "Development of secondary bacterial pneumonia in adults presenting with influenza versus noninfluenza viral respiratory infection". *Therapeutic Advances in Respiratory Diseases*, **14**. doi:10.117/1753466620963026
(2) Williams, J.R., Crespi, C.M. (2020). "Causal inference for multiple continuous exposures via the multivariate generalized propensity score", *arXiv preprint.* arXiv:2008.13767.
(3) Williams, J.R., Kim, H., & Crespi, C.M. (2020). "Modeling observations with a detection limit using a truncated normal distribution with censoring", *BMC Med Res Methodol*, **20**:170. doi:10.1186/s12874-020-01032-9.
(4) Dean, M., Williams, J., Kasari, C., & Orlich, O. (2020). "Adolescents with autism spectrum disorder and social skills groups at school: A randomized trial comparing intervention environment and peer composition", *School Psychology Review*, **49**(1):60-73. doi:10.1080/2372966X.2020.1716636
(5) Williams, J., Bravo HC, Tom J & Paulson JN. (2020). "microbiomeDASim: Simulating longitudinal differential abundance for microbiome data [version 2; peer review: 2 approved]", *F1000Research* **8**:1769. doi:10.12688/f1000research.20660.2.
(6) Gulsrud, A., Carr, T., Williams, J., Panganiban, J., Jones, F., Kimbrough, J., Shih, W., & Kasari, C. (2019). "Developmental screening and early intervention in a childcare setting for young children at-risk for autism and other developmental delays: A feasibility trial", *Autism Research* **12**(9):1423-1433. doi:10.1002/aur.2160
(7) Locke, J., Williams, J., Shih, W., & Kasari, C. (2017). "Characteristics of socially successful elementary school-aged children with autism", *Journal of Child Psychology and Psychiatry* **58**(1):94-102. doi:10.1111/jcpp.12636

Internal Documents

(1) Williams, J. & Kim, H. (2018) "Analysis methods for left censored log contrast sensitivity data", Alcon Technical Document (TDOC-0055661).

(2) Williams, J. & Kim, H. (2018) "Methods for calculating log contrast sensitivity difference with left censoring", Alcon Technical Document (TDOC-0055664).

PRESENTATIONS & CONFERENCES

2019 Joint Statistical Meetings *Denver, CO*
"Maximum Likelihood Estimation of a Truncated Normal Distribution with Censored Data"
Williams, J.*, Crespi, C. & Kim, H.

2019 Western North American Region (WNAR) of the International Biometric Society *Portland, OR*
"Maximum Likelihood Estimation of a Truncated Normal Distribution with Censored Data"
Williams, J.*, Crespi, C. & Kim, H.

2018 Joint Statistical Meetings *Vancouver, BC, Canada*
"Propensity Score Methods for Studies with Clustered Data and Continuous Exposure"
Williams, J.*, Crespi, C. & Wang, M

2018 Gatlinburg Conference *San Diego, CA*
"Using Clustering to Define ASD Subgroups with Differential Play Outcomes"
Williams, J.*, Gulsrud, A., & Kasari, K.

AWARDS & HONORS

- **Dissertation Year Fellowship** ($20,000)

Awarded By: *UCLA Graduate Division*
Received: December 2019 – December 2020

- **Most Outstanding Oral Presentation** ($500)

Awarded By: *Western North American Region of the International Biometric Society*
Received: June, 2019

- **Juneal Marie Smith Fellowship in International Nutrition** ($2,500)

Awarded By: *UCLA Fielding School of Public Health*
Received: June, 2019

- **Graduate Summer Research Mentorship** ($6,000)

Awarded By: *UCLA Graduate Division*
Received: June 2017 – September 2017

PROFESSIONAL ASSOCIATIONS

- American Statistical Association, Southern California Chapter
- Western North American Region of the International Biometric Society

JOURNAL REVIEW PARTICIPATION

- Health Services and Outcomes Research Methodology (June 2020)