

Luke Benz

☎ (802) 989-2843 ✉ lukesbenz@gmail.com 🌐 www.lukebenz.com 📄 lbenz730

EDUCATION

Harvard T.H. Chan School of Public Health

2021-Present

PhD Student, Biostatistics (2021-)

MA, Biostatistics (2021-2023)

Advisor: Sebastien Haneuse

Yale University

2015-2019

BS, Applied Mathematics

- Phi Beta Kappa (Early Selection, Fall 2018)
- Summa Cum Laude
- Distinction in Major

Undergraduate Senior Thesis: *An Examination of Timeout Value, Strategy, and Momentum in NCAA Division 1 Men's Basketball* [[Link](#)]

EXPERIENCE

Medidata Solutions—New York, NY

August 2019 - June 2021

Senior Data Scientist (April 2021 - June 2021)

Statistical Analyst/Data Scientist (August 2019 - March 2021)

- Developed models to select sites for clinical trials and forecast enrollment and major milestones over the duration of the study.
- Built survival models to predict patient dropout and researched factors associated with dropout in Alzheimer's Disease clinical trials.
- Designed Python data pipeline for identifying various data transformations necessary to standardize and combine data across clinical trials.
- Maintained and developed NLP model to perform value level standardization of clinical data utilizing reinforcement learning techniques.

Yale School of Public Health—New Haven, CT

June 2016 - May 2019

Biostatistics Research Assistant

- Research assistant for Elizabeth Claus MD, PhD.
- Analyzed quality of life data for cancer patients with meningioma and low-grade glioma.
- Managed the recruitment and enrollment for the International Low Grade Glioma Registry.

National Institute of Standards and Technology—Gaithersburg, MD

Summers 2017 and 2018

Summer Undergraduate Research Fellow (SURF)

- Research fellow in Information Technology Lab Statistical Engineering Division for Dr. Antonio Possolo (2018) and Dr. Andrew Rukhin (2017).
- Built NIST Homogeneity Assessor (NIHOMA), an R Shiny web application for exploring homogeneity of candidate reference materials using linear, Gaussian random effects model.
- Explored techniques for estimating heterogeneity variances in order to improve methods for combining results in collaborative studies with unreliable reported uncertainties.

- Wrote technical manual for internal NIST use:
Benz, L., Lafarge, T., and Possolo, A. “NIST Homogeneity Assessor User’s Manual.” [\[Link\]](#)

PUBLICATIONS

Heffernan, A, Wu, Y., **Benz, L.**, Verhaak, R., Kwan, B., and Claus, E. “Quality of life after surgery for lower grade gliomas.” *Cancer*, 2023. [\[Link\]](#)

Benz, L. and Lopez, M. “Estimating the change in soccer’s home advantage during the Covid-19 pandemic using bivariate Poisson regression.” *ASTA Advances in Statistical Analysis*, 2021. 107:205–232. [\[Link\]](#)

Claus, E., Feliciano, J., **Benz, L.**, Calvocoressi, L. “Social media partnerships with patient organizations for neuro-oncology patient recruitment.” *Neuro-Oncology Practice*, 2019. 7(2):143-151. [\[Link\]](#)

Benz, L.S., Wensch, M.R., Schildkraut, J.M., Bondy, M.L., Warren, J.L., Wiemels, J.L. and Claus, E.B. “Quality of life after surgery for intracranial meningioma.” *Cancer*, 2017. 124(1): 161-166. [\[Link\]](#)

CONFERENCE POSTERS AND PAPERS

Bliss, T., **Benz, L.**, and Lopez, M. ”eA Comprehensive Survey of the Home Advantage in American Football.” Presented at New England Symposium of Statistics in Sports, Harvard University, Cambridge, MA, (September 2023). [\[Link\]](#)

Liu, J., Allen, P., **Benz, L.**, Blickstein, D., Okidi, E., and Shi, X. ”A Machine Learning Approach for Recruitment Prediction in Clinical Trial Design.” Extended Abstract, *Machine Learning for Health (ML4H): a workshop at NeurIPS 2021*. [\[Paper\]](#), [\[Poster\]](#)

Allen, P., Abba, I., Ahlberg C., **Benz, L.**, Lau, H., Liu, J. Melham, F. Fisseha, N. and Florian, H. “Identifying Predictive Factors of Patient Dropout in Alzheimer’s Disease Clinical Trials.” Poster presented at *Alzheimer’s Association International Conference*. (July, 2021). [\[Link\]](#)

Benz, L. “An Examination of Timeout Value, Strategy, and Momentum in NCAA Division 1 Men’s Basketball.” Poster presented at *New England Symposium of Statistics in Sports*. Harvard University, Cambridge, MA (September, 2019). [\[Link\]](#)

Benz, L., Senders, J., Wefel, J., and Claus, E. “The International Low Grade Glioma Registry Patient-Reported Quality of Life.” Poster presented at *Society for Neuro-Oncology Annual Scientific Meeting*, New Orleans, LA (October, 2018). [\[Link\]](#)

TALKS AND PRESENTATIONS

Benz, L. “Understanding Missing Data when Emulating Target Trials in EHR-Based Observational Studies.” Presented at *Quantitative Issues in Cancer Research Working Seminar, Harvard University Department of Biostatistics*. (September, 2023).

Benz, L., Haneuse, S., and Levis, A. “A Simulation Study to Compare Causal Inference Methods for Point Exposures with Missing Confounders.” Oral presentation at *Joint Statistical Meetings*, Toronto, ON, Canada (August, 2023). [\[Link\]](#)

Benz, L. “A Simulation Study to Compare Causal Inference Methods for Point Exposures with Missing Confounders.” Presented at *Quantitative Issues in Cancer Research Working Seminar, Harvard University Department of Biostatistics*. (March, 2023).

Benz, L. “mixWAS: A Federated Algorithm for Testing Variant Level Associations Across Mixed Type Phenotypes.” Presented at *Quantitative Issues in Cancer Research Working Seminar, Harvard University Department of Biostatistics*. (October, 2022).

Benz, L. “mixWAS: A Federated Algorithm for Testing Variant Level Associations Across Mixed Type Phenotypes.” Presented at *Quantitative Issues in Cancer Research Working Seminar, Harvard University Department of Biostatistics*. (January, 2022).

Benz, L. and Lopez, M. “Estimating the Change in Soccer’s Home Advantage During the COVID-19 Pandemic using Bivariate Poisson Regression.” Invited talk presented at *INFORMS Annual Meeting*. (October, 2021). [[Link](#)]

Benz, L. and Lopez, M. “Estimating the Change in Soccer’s Home Advantage During the COVID-19 Pandemic using Bivariate Poisson Regression.” Oral presentation at *New England Symposium on Statistics in Sports*. (October, 2021). [[Link](#)]

Benz, L. and Lopez, M. “Estimating the Change in Soccer’s Home Advantage During the COVID-19 Pandemic using Bivariate Poisson Regression.” Invited talk presented at *Harvard Sports Analytics Lab Seminar*. (April, 2021). [[Link](#)]

Benz, L. “An Examination of Timeout Value, Strategy, and Momentum in NCAA Division 1 Men’s Basketball.” Plenary talk presented at *Electronic Undergraduate Statistics Research Conference*. (November, 2019). [[Link](#)]

Benz, L., “Launch and Demonstration of the NIST Homogeneity Assessor.” *National Institutes of Standards and Technology Summer Undergraduate Research Fellowship Colloquium*, Gaithersburg, MD (August, 2018). [[Link](#)]

Benz, L., “Combining Results in Collaborative Studies When Reported Uncertainties are Unreliable.” *National Institutes of Standards and Technology Summer Undergraduate Research Fellowship Colloquium*, Gaithersburg, MD (August, 2017). [[Link](#)]

SKILLS

Programming Languages and Frameworks R, Python, SQL, C, R/Shiny, L^AT_EX

SOFTWARE

ncaahoopR An R package for working with NCAA Basketball Play-by-Play Data. [[Link](#)]

AWARDS AND HONORS

Undergraduate Statistics Project Competition, American Statistical Association *Spring 2019*
First place research project for senior thesis, *An Examination of Timeout Value, Strategy, and Momentum in NCAA Division 1 Men’s Basketball*.

Statsketball Contest, American Statistical Association *April 2018*
2018 College Winner, Build Your Own Bracket Draft Challenge

NIST Summer Undergraduate Research Fellowship, Yale University *Summers 2017, 2018*

George J. Schulz Fellowship for the Natural Sciences, Yale University *Summer 2016*

Michael Manzela Fellowship Supporting Cancer Research, Yale University *Summer 2016*

TEACHING

Teaching Fellow BST 219 Core Principles of Data Science, Harvard University *Fall 2023*

Teaching Fellow BST 219 Core Principles of Data Science, Harvard University *Fall 2022*

- Certificate of Distinction in Teaching

Undergraduate Learning Assistant Physics 180 (University Physics), Yale University *Fall 2017*

Peer Tutor Math 112 (Calculus I), Yale University *Fall 2016, Spring 2017*

JOURNAL REVIEWER

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| <i>Advances in Statistical Analysis</i> | <i>2023 – Present</i> |
| <i>JP Journal of Biostatistics</i> | <i>2022 – Present</i> |
| <i>BMC Sports Science, Medicine and Rehabilitation</i> | <i>2022 – Present</i> |
| <i>Journal of Quantitative Analysis in Sports</i> | <i>2021 – Present</i> |