

# Luke Benz

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## EDUCATION

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### Yale University

2015-2019

B.S. Applied Mathematics

GPA: 3.97/4.00

- 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

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### Medidata Solutions—New York, NY

August 2019 - Present

#### *Statistical Analyst/Data Scientist*

- Develop 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

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**Benz, L.** and Lopez, M. “Estimating the change in soccer’s home advantage during the Covid-19 pandemic using bivariate Poisson regression.” Pre-Print. [\[Link\]](#)

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. [\[Link\]](#)

## PRESENTATIONS

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**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.** “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). [\[Link\]](#)

**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

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**Programming Languages and Frameworks** R, Python, SQL, C, R/Shiny, L<sup>A</sup>T<sub>E</sub>X

## SOFTWARE

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

## AWARDS AND HONORS

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**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

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

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