

# Kellie Ottoboni

## Curriculum Vitae

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### Education

- 2014–present **PhD, Statistics**, *University of California, Berkeley*.  
Advisor: Philip B. Stark  
Anticipated May 2019
- 2010–2014 **BA, Applied Mathematics and BA, Statistics**, *University of California, Berkeley*.  
High Distinction in General Scholarship  
Honors in Statistics

### Research Interests

Nonparametric statistics, causal inference, reproducibility and open science, applications in health and social science

### Awards

- 2019 Election Verification Network Innovation Award
- 2018–2019 UC Dissertation Year Fellowship
- 2018 E-VOTE-ID 2018 Best PhD Colloquium Presentation Award
- 2018 UC Berkeley Statistics KAG Graduate Student Travel Award
- 2018 Institute of Mathematical Statistics Hannan Graduate Student Travel Award
- 2015–2018 Berkeley Institute for Data Science Fellowship
- 2015 Microsoft Research Graduate Women’s Scholarship
- 2014 UC Berkeley Statistics Department Citation
- 2010 Ligurians of the World Scholarship

### Publications

- [1] **Kellie Ottoboni**, Matthew Bernhard, J. Alex Halderman, Ronald L. Rivest, and Philip B Stark. Bernoulli ballot polling: A manifest improvement for risk-limiting audits. *arXiv preprint arXiv:1812.06361*, 2019. Accepted at Voting’19 Workshop.
- [2] Philip B. Stark and **Kellie Ottoboni**. Random sampling: Practice makes imperfect. *arXiv preprint arXiv:1810.10985*, 2018.
- [3] **Kellie Ottoboni**, Philip B Stark, Mark Lindeman, and Neal McBurnett. Risk-limiting audits by stratified union-intersection tests of elections (SUITE). In *International Joint Conference on Electronic Voting*, pages 174–188. Springer, 2018.

- [4] **Kellie Ottoboni** and Philip B Stark. Random problems with R. *arXiv preprint arXiv:1809.06520*, 2018.
- [5] **Kellie Ottoboni**, Fraser Lewis, and Luigi Salmaso. An empirical comparison of parametric and permutation tests for regression analysis of randomized experiments. *Statistics in Biopharmaceutical Research*, 10(4):264–273, 2018.
- [6] Mark Lindeman, Neal McBurnett, **Kellie Ottoboni**, and Philip B. Stark. Next steps for the Colorado risk-limiting audit (CORLA) program. *arXiv preprint arXiv:1803.00698*, 2018.
- [7] **Kellie Ottoboni**. A statistical analysis of salt and mortality at the level of nations. In Justin Kitzes, Daniel Turek, and Fatma Deniz, editors, *The Practice of Reproducible Research: Case Studies and Lessons from the Data-Intensive Sciences*. University of California Press, Oakland, CA, 2017.
- [8] K. Jarrod Millman, **Kellie Ottoboni**, Naomi A. P. Stark, and Philip B. Stark. Reproducible applied statistics: Is tagging of therapist-patient interactions reliable? In Justin Kitzes, Daniel Turek, and Fatma Deniz, editors, *The Practice of Reproducible Research: Case Studies and Lessons from the Data-Intensive Sciences*. University of California Press, Oakland, CA, 2017.
- [9] Anne Boring, **Kellie Ottoboni**, and Philip B. Stark. Student evaluations of teaching (mostly) do not measure teaching effectiveness. *ScienceOpen Research*, January 2016.

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## Presentations

- 2018 **Risk-limiting Audits by Stratified Union-Intersection Tests of Elections (SUITE)**, *International Joint Conference on Electronic Voting*, contributed talk.
- 2018 **The Risk Limit of Bayesian Audits**, *International Joint Conference on Electronic Voting*, PhD colloquium presentation.
- 2018 **From Paper to Program: Challenges of Implementing Permutation Tests**, *International Society for Nonparametric Statistics Conference*, contributed talk.
- 2017 **Nonparametric Risk Attribution for Factor Models of Portfolio Returns**, *Center for Risk Management Research Seminar*, invited talk.
- 2017 **Simple Random Sampling: Not So Simple**, *Center for Risk Management Research Seminar*, invited talk.
- 2017 **A Statistical Analysis of Salt and Mortality at the Level of Nations**, *Book Launch: The Practice of Reproducible Research*, lightning talk.
- 2016 **permuter: An R Package for Randomization Inference**, *UseR! Conference*, contributed talk.
- 2016 **permute: A Python Package for Randomization Inference**, *International Society for Nonparametric Statistics Conference*, contributed talk.

- 2016 **Model-based matching for causal inference in observational studies**, *Center for Risk Management Research Seminar*, invited talk.
- 2016 **Model-based matching for causal inference in observational studies**, *BSTARS Conference*, lightning talk.
- 2015 **Student Evaluations of Teaching (Mostly) Do Not Measure Teaching Effectiveness**, *Moore-Sloan Data Science Environments Summit*, lightning talk.
- 2015 **Is Salt Bad for Nations?**, *BSTARS Conference*, poster.
- 2014 **Undergraduate commencement speech**, *Statistics Department Commencement*.
- 2014 **A Greedy Algorithm for Gene Set Enrichment Analysis Using the Protein Network**, *Cal Day*, poster.

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## Academic Experience

- 2018 **Volunteer Software Developer**, *Michigan Risk-limiting Audit Pilots*.  
Wrote a Python tool, including user interface and risk calculations, and facilitated in person at pilot risk-limiting audits at three cities in Michigan
- 2018 **Researcher**, *UCANR Nutrition Policy Institute*.  
Prepared and analyzed meal participation and plate waste data for a randomized experiment measuring the effects of new school lunch policies in San Francisco schools
- 2015–present **Graduate Student Researcher**, *Berkeley Institute for Data Science*.  
–Spent 50% of my time at the institute, attended weekly talks and participated in events to spread data science concepts and tools across domains  
–Active member of the Reproducibility and Open Science Working Group
- 2013–2014 **Research Assistant**, *Nielsen Lab*.  
–Developed a network-based multiple testing correction procedure  
–Performed statistical analysis of gene expression data in a study of rheumatoid arthritis
- 2010 **Biostatistics Intern**, *Stanford School of Medicine*.  
–Created presentations to teach doctors how to gather data using new database system  
–Performed exploratory data analysis on clinical data

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## Teaching

- 2018 **Instructor**, *Software Carpentry Workshop*, BIDS.  
Taught Unix shell and git in a two-day workshop for graduate students.
- 2016 **Graduate Student Instructor**, *UC Berkeley Department of Statistics*.  
Statistics 215B: Statistical Models: Theory and Application
- 2015 **Graduate Student Instructor**, *UC Berkeley Department of Statistics*.  
Statistics 20: Introduction to Probability and Statistics
- 2013–2014 **Grader**, *UC Berkeley Department of Mathematics*.  
Math 53, Multivariable Calculus; Math 54, Linear Algebra and Differential Equations
- 2012–2014 **Lab Assistant and Grader**, *UC Berkeley Department of Statistics*.  
–Lab Assistant: Statistics 133, Computing with Data  
–Grader: Statistics 133, Computing with Data; Statistics 154, Machine Learning

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## Service

- 2016–2017 **Co-president**, *Statistics Graduate Student Association*.
- 2015–2016 **Social Chair**, *Statistics Graduate Student Association*.
- 2014 **Mentor**, *Berkeley Undergraduate Mathmentoring Program*.
- 2014 **Hospitality Committee**, *Statistics Graduate Student Association*.

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## Work Experience

- 2017 **Summer Intern**, *State Street Global Exchange, GX Labs*.  
Developed methods for risk attribution in simulated portfolio risk using factor models
- 2011–2012 **Student Research Analyst**, *Berkeley Law Financial Aid*.  
Aggregated data from databases to administer financial aid and identify trends
- 2008–2010 **Oboe teacher**.  
Taught basic musicianship, music theory, and instrument technique to preteen students

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## Skills

- Mathematical Computing R, Rstudio, Python, Matlab
- Publishing L<sup>A</sup>T<sub>E</sub>X, Jupyter, knitR, Sphinx
- Other Unix, git, GitHub, Microsoft Office