Jacob Fiksel

CONTACT INFORMATION	1721 Pine St. Apt F Philadelphia, PA 19103	608-345-8988 jfiksel@gmail.com

PROFESSIONAL EXPERIENCE

University of Pennsylvania, Philadelphia, PA

Postdoctoral Associate in Biostatistics, September 2021-Present

- Develop statistical methods for analyzing and creating risk prediction models from EHR data, claims data, and biobank data.

Janssen Pharmaceuticals, Spring House, PA

Senior Biostatistician, August 2020-August 2021

- Provides advanced statistical support for clinical trial design as a member of the Statistical Simulation and Modeling and Oncology Statistics groups

EDUCATION

Johns Hopkins Bloomberg School of Public Health, Baltimore, MD

Ph.D., Biostatistics, May 2020

- Thesis Topic: Bayesian Quantification Learning with Applications to Mortality Surveillance
- Advisor: Abhirup Datta Ph.D

Pomona College, Claremont, CA

B.S., Mathematics with a Statistics focus, May 2015

- *Cum Laude*
- GPA 3.85/4.00
- Distinction in the Senior Exercise

RESEARCH INTERESTS

Applied Bayesian statistical modeling, clinical trial design, global public health, oncology, cancer genomics

RESEARCH EXPERIENCE

Johns Hopkins Bloomberg School of Public Health
- Developed a novel Bayesian framework using generalized Gibbs updates for robust quantification
- As part of the Countrywide Mortality Surveillance for Action (COMSA) in Mozambique team, built the calibratedVA R package for application of the Bayesian quantification framework to estimation of the leading causes of neonatal and child death in Mozambique.
- Assisted in the development and implementation of statistical methods to detect chromosomal abnormalities in circulating cell-free DNA collected from cancer patients. This work resulted in a Nature publication
- In collaboration with a clinical radiation oncologist, constructed a Random Survival Forest that uses clinical data from patients with bone metastases to make personalized estimates of survival, allowing for more informed decision making in the choice of palliative radiation treatment regimen
- Developed widely-used teaching guides for the use of GitHub Classroom in teaching undergraduate statistics.

REFEREED JOURNAL PUBLICATIONS

1. Jillian Phallen, Alessandro Leal, Brian D Woodward, Patrick M Forde, Jarushka Naidoo, Kristen A Marrone, Julie R Brahmer, **Jacob Fiksel**, Jamie E Medina, Stephen Cristiano, et al. Early noninvasive detection of response to targeted therapy in non–small cell lung cancer. *Cancer research*, 79(6):1204–1213, 2019

2. Stephen Cristiano*, Alessandro Leal*, Jillian Phallen*, **Jacob Fiksel***, Vilmos Adleff, Daniel C Bruhm, Sarah Østrup Jensen, Jamie E Medina, Carolyn Hruban, James R White, et al. Genome-wide cell-free dna fragmentation in patients with cancer. *Nature*, page 1, 2019

3. **Jacob Fiksel**, Leah R Jager, Johannna S Hardin, and Margaret A Taub. Using github classroom to teach statistics. *Journal of Statistics Education*, pages 1–10, 2019

4. Sara R Alcorn, Christen Elledge, Jean L Wright, Thomas J Smith, Todd R McNutt, **Jacob Fiksel**, Scott Zeger, and Theodore L DeWeese. Frequency of complicated symptomatic bone metastasis over a breadth of operational definitions. *International Journal of Radiation Oncology · Biology · Physics*, 2019

5. Abhirup Datta, **Jacob Fiksel**, Agbessi Amouzou, and Scott Zeger. Regularized Bayesian transfer learning for population level etiological distributions. *Biostatistics*, 2018

6. Alessandro Leal, Nicole C. T. van Grieken, Doreen N. Palsgrove, Jillian Phallen, Jamie E. Medina, Carolyn Hruban, Mark A. M. Broeckaert, Valsamo Anagnostou, Vilmos Adleff, Daniel C. Bruhm, Jenna V. Canzoniero, **Jacob Fiksel**, Marianne Nordsmark, Fabienne A. R. M. Warmerdam, Henk M. W. Verheul, Dick Johan van Spronsen, Laurens V. Beerepoot, Maud M. Geenen, Johanneke E. A. Portielje, Edwin P. M. Jansen, Johanna van Sandick, Elma Meershoek-Klein Kranenbarg, Hanneke W. M. van Laarhoven, Donald L. van der Peet, Cornelis J. H. van de Velde, Marcel Verheij, Remond Fijneman, Robert B. Scharpf, Gerrit A. Meijer, Annemieke Cats, and Victor E. Velculescu. White blood cell and cell-free dna analyses for detection of residual disease in gastric cancer. *Nature Communications*, 11(1):525, 2020

7. Sara R. Alcorn, **Jacob Fiksel**, Jean L. Wright, Christen R. Elledge, Thomas J. Smith, Powell Perng, Sarah Saleemi, Todd McNutt, Theodore L. DeWeese, and Scott L. Zeger. Developing an Improved Statistical Approach for Survival Estimation in Bone Metastases Management: The Bone Metastases Ensemble Trees for Survival (BMETS) Model. *International Journal of Radiation Oncology* Biology* Physics*, 2020

8. Sara R Alcorn, Christen R Elledge, Jean L Wright, Thomas J Smith, Todd R McNutt, **Jacob Fiksel**, Scott L Zeger, and Theodore L DeWeese. Frequency of complicated symptomatic bone metastasis over a breadth of operational definitions. *International Journal of Radiation Oncology* Biology* Physics*, 106(4):800–810, 2020

9. Brian T Garibaldi*, **Jacob Fiksel***, John Muschelli, Matthew L Robinson, Masoud Rouhizadeh, Jamie Perin, Grant Schumock, Paul Nagy, Josh H Gray, Harsha Malapati, et al. Patient trajectories among persons hospitalized for covid-19: A cohort study. *Annals of internal medicine*, 2020

10. Christen R Elledge, Anna W LaVigne, **Jacob Fiksel***, Jean L Wright, Todd McNutt, Lawrence R Kleinberg, Chen Hu, Thomas J Smith, Scott Zeger, Theodore L DeWeese, et al. External validation of the bone metastases ensemble trees for survival (bmets) machine learning model to predict survival in patients with symptomatic bone metastases. *JCO Clinical Cancer Informatics*, 5:304–314, 2021

11. **Jacob Fiksel**, Abhirup Datta, and Scott Zeger. A transformation-free linear regression for compositional outcomes and predictors. *Biometrics*, March 2021

* Co-first author

12. **Jacob Fiksel**, Abhirup Datta, Agbessi Amouzou, and Scott Zeger. Generalized bayes quantification learning under dataset shift. *Journal of the American Statistical Association*, 2021

Software
- R package codalm
- R package CalibratedVA

Computing knowledge
- R coding and package development
- Stan, JAGS, and custom MCMC samplers
- Development of machine learning models
- Next generation sequencing analysis with command line tools and R
- Reproducible computing with Git, GitHub, and GitHub Classroom
- Simulation studies using a high performance computing exchange (JHPCE)

Awards
Delta Omega Honorary Society Student Inductee (Alpha Chapter) May 2020
JHSPH Department of Biostatistics Helen Abbey Award February 2020
- For excellence in teaching

Presentations
World Meeting of the International Society for Bayesian Analysis June 2021
- *Generalized Bayes Quantification Learning Under Dataset Shift*

Johns Hopkins Research on Aging Showcase Poster Competition April 2018
- *Optimized Survival Evaluation to Guide Bone Metastases Management: Developing an Improved Statistical Approach.* **1st place in the graduate student poster competition**

Teaching Experience
Lead Teaching Assistant
- Fall 2018, 2019: Statistical Methods in Public Health I-II
  - Lead weekly labs 2-3 times per week for 10-40 graduate students

Teaching Assistant
- Spring 2018: Analysis of Longitudinal Data and Multilevel Statistical Models in Public Health
- Spring 2017: Statistical Methods in Public Health III-IV
- Fall 2016, 2018: Biostatistics for Public Health
  - Lead weekly labs once per week for 25 undergraduate students

Service
JHSPH Biostatistics Computing Club Co-President September 2016-June 2017
- Organized bi-weekly student presentations on computing related topics for the Biostatistics department

Recruiting Committee, Division of Biostatistics December 2016 – Present
- Assist with planning of annual Division of Biostatistics Open House and Admitted Student Visit Days
- Meet with prospective and admitted students

References
Abhirup Datta
Assistant Professor   E-mail: abhidatta@jhu.edu
Department of Biostatistics
Johns Hopkins Bloomberg School of Public Health

Scott Zeger
    Professor   E-mail: sz@jhu.edu
    Department of Biostatistics
    Johns Hopkins Bloomberg School of Public Health

Robert Scharpf
    Associate Professor   E-mail: rscharpf@jhu.edu
    Department of Oncology
    Johns Hopkins University