Evan L. Ray

CONTACT

Website:	http://www.evanlray.com/
Email:	eray@mtholyoke.edu
Mailing Address:	404C Clapp Laboratory Mount Holyoke College 50 College St. South Hadley, MA 01075
Telephone:	413-538-2025

EDUCATION

2015	Ph.D. Mathematics (concentration in Statistics), University of Massachusetts, Amherst Advisor: John Staudenmayer
2012	M.S. Statistics, University of Massachusetts, Amherst
2007	B.S. Mathematics, summa cum laude, University of Massachusetts, Boston

PROFESSIONAL EXPERIENCE

2017 – present	Assistant Professor of Statistics, Department of Mathematics and Statistics, Mount Holyoke College
2015 – 2017	Postdoctoral Research Associate, Department of Biostatistics and Epidemiology, University of Massachusetts, Amherst
2016	Visiting Lecturer, Department of Mathematics and Statistics, Amherst College
2013 – 2015	Software Engineer, Analytics, Enformia
2010 – 2013	Research Assistant, Department of Mathematics and Statistics, University of Massachusetts, Amherst
2012 – 2013	Research Assistant, Department of Electrical and Computer Engineering, University of Massachusetts, Amherst
2009 – 2010, 2013	Teaching Assistant, Department of Mathematics and Statistics, University of Massachusetts, Amherst

GRANT FUNDING

Project Title: Influenza Forecasting Center of Exellence at University of Massachusetts

Role: Co-Investigator; Principal Investigator of sub-award to Mount Holyoke College

Source of Support: Centers for Disease Control and Prevention

Award Period: 9/30/2019 – 9/29/2020; renewable for up to 5 years

Person-Months Commited to Project: Year 1 Summer 2.5

Project Title: CUE Ethics: Collaborative Research: Evaluating Frameworks for Incorporating Computing Across the Curriculum

Role: Affiliated Faculty Member

Source of Support: NSF

Total Award Amount: $146,644

Award Period: 2/1/2020-7/31/2021

Person-Months Committed to Project: Year 1 Summer 0.22; Year 2 Summer 0.05

PUBLICATIONS

Published:

Ray EL, Qian J, Brecha R, Reilly MP, and Foulkes AS (2019). Stochastic imputation for integrated transcriptome association analysis of a longitudinally measured trait. Statistical Methods in Medical Research. DOI: 10.1177/0962280219852720.

McGowan CJ, Biggerstaff M, Johansson M, Apfeldorf KM, Ben-Nun M, Brooks L, Convertino M, Erraguntla M, Farrow DC, Freeze J, Ghosh S, Hyun S, Kandula S, Lega J, Liu Y, Michaud N, Morita H, Niemi J, Ramakrishnan N, **Ray EL**, Reich NG, Riley P, Shaman J, Tibshirani R, Vespignani A, Zhang Q, Reed C and The Influenza Forecasting Working Group (2019). Collaborative efforts to forecast seasonal influenza in the United States, 2015–2016. Scientific Reports 9(683).

Reich NG, Brooks LC, Fox SJ, Kandula S, McGowan CJ, Moore E, Osthus D, **Ray EL**, Tushar A, Yamana TK, Biggerstaff M, Johansson MA, Rosenfeld R, and Shaman J (2019). A collaborative multiyear, multimodel assessment of seasonal influenza forecasting in the United States. Proceedings of the National Academy of Sciences, 201812594. DOI: 10.1073/pnas.1812594116

Qian J, **Ray EL**, Brecha RL, Reilly MP, and Foulkes AS (2018). A likelihood-based approach to transcriptome association analysis. Statistics in Medicine. 2018;1–17. DOI: 10.1002/sim.8040

Ray EL, Sasaki JE, Freedson PS, and Staudenmayer J (2018). Physical Activity Classification with Dynamic Discriminative Methods. Biometrics. DOI: 10.1111/biom.12892

Ray EL and Reich NG (2018). Prediction of infectious disease epidemics via weighted density ensembles. PLOS Computational Biology 14(2): e1005910.

Lauer SA, Sakrejda K, **Ray EL**, Keegan LT, Bi Q, Suangtho P, Hinjoy S, Iamsirithaworn S, Suthachana S, Laosiritaworn Y, Cummings DAT, Lessler J, and Reich NG (2018). Prospective forecasts of annual dengue hemorrhagic fever incidence in Thailand, 2010 – 2014. Proceedings of the National Academy of Sciences, 0027-8424.

Ray EL, Sakrejda, K, Lauer, SA, Johansson, MA, and Reich, NG (2017). Infectious disease prediction with kernel conditional density estimation. Statistics in Medicine, 36:4908–4929.

Kozey Keadle S, Lyden K, Hickey A, **Ray EL**, Fowke JL, Freedson PS, and Matthews CE (2014). Validation of a previous day recall for measuring the location and purpose of active and sedentary behaviors compared to direct observation. Int. J. Behav. Nutr. Phys. Act., 11, 12.

Accepted for Publication:

Reich NG, McGowan C, Brooks L, Kandula S, Moore E, Osthus D, **Ray EL**, Tushar A, Yamana T, Crawford-Crudell W, Gibson GC, Silva R, Biggerstaff M, Johansson MA, Rosenfeld R, Shaman J. Accuracy of real-time multi-model ensemble forecasts for seasonal influenza in the U.S. To appear in PLoS Computational Biology.

Johansson MA, Apfeldorf KM, Dobson S, Devita J, Buczak A, Baugher B, Moniz LJ, Bagley T, Babin SM, Guven E, Yamana TK, Shaman J, Moschou T, Lothian N, Lane A, Osbourne G, Jiang G, Brooks L, Farrow D, Hyun S, Tibshirani RJ, Rosenfeld R, Lessler J, Reich NG, Cummings DAT, Lauer SA, Moore SM, Clapham HE, Lowe R, Bailey T, García-Díez M, Sá Carvalho M, Rodo X, Sardar T, Paul RE, **Ray EL**, Sakrejda K, Brown AC, Meng X, Osoba O, Vardavas R, Manheim D, Moore M, Rao DM, Porco TC, Ackley S, Liu F, Worden L, Convertino M, Liu Y, Reddy A, Ortiz E, Rivero J, Brito H, Juarrero A, Johnson LR, Gramacy RB, Cohen JM, Mordecai EA, Murdock CC, Rohr J, Ryan SJ, Ibarra AS, Weikel DP, Jutla A, Khan R, Poultney M, Colwell RR, Rivera B, Barker CM, Bell J, Biggerstaff M, Swerdlow D, Mier-y-Teran-Romero L, Forshey B, Asher J, Clay M, Trtani J, Margolis HS, Chretien JP, George D, and Hebbeler A. Advancing probabilistic epidemic forecasting through an open challenge: The Dengue Forecasting Project. To appear in Proceedings of the National Academy of Sciences.

PROFESSIONAL SERVICE

Ad Hoc Reviews:

2019	Journal of Statistics Education, PLOS Computational Biology, Statistics in Medicine
2018	PLOS Computational Biology, PLOS Neglected Tropical Diseases, Statistics in Medicine
2017	PLOS Computational Biology, Statistics in Medicine

PRESENTATIONS

Invited presentations are indicated with a *.

***Ray, EL** (2019, August). ILINet Backfill: Descriptive Analysis, Effects on Forecasts, and Approaches to Mitigation. CSTE/CDC Infectious Disease Forecasting for Public Health Workshop; Atlanta, GA, USA.

***Ray EL**, Beaudry I, Gibson GC and Reich NG (2019, May). Toward More Refined Influenza Forecasting Models: Using Existing and Novel Data Sources to Inform Detailed Model Structure. MIDAS Network Meeting; Bethesda, MD, USA.

***Ray, EL** and Reich, NG (2018, August). Ensemble Forecasts of Infectious Disease. Seminar Series, Pontificia Universidad Católica de Chile; Santiago, Chile.

***Ray, EL** (2018, June). Flu Forecasting from the Research Perspective. CSTE/CDC Infectious Disease Forecasting for Public Health Workshop; West Palm Beach, FL, USA.

***Ray, EL** and Reich, NG (2017, November). Forecasting Infectious Disease Outbreaks with Weighted Density Ensembles. Five College Statistics and Data Science Research Bytes; Amherst, MA, USA.

***Ray, EL** and Reich, NG (2017, April). Feature-Weighted Ensembles for Probabilistic Time-Series Forecasts. Invited Session at New England Statistics Symposium; Storrs, CT, USA.

Ray, EL, Sakrejda, K, Lauer, SA, Johansson, MA, and Reich, NG (2016, August). Infectious disease prediction with kernel conditional density estimation and copulas. Poster session presented at Joint Statistical Meetings; Chicago, IL, USA.

***Ray, EL**, Sakrejda, K, Brown, AG, and Reich, NG (2016, August). Team Kernel of Truth Forecasting Method Description. Seasonal Influenza Forecasting Workshop; Atlanta, GA, USA.

Ray, EL, Sakrejda, K, and Reich, NG (2015, December). Nonparametric prediction of infectious disease incidence with state space reconstruction. Poster session presented at 5th International Conference on Infectious Disease Dynamics; Clearwater Beach, FL, USA.

***Ray, EL**, Sakrejda, K, Brown, AG, and Meng, X (2015, September). Team Kernel of Truth Forecasting Method Description. Workshop on Integrating Prediction and Forecasting Models for Decision-Making: Dengue Epidemic Prediction; Washington, DC, USA.

***Ray, EL** and Beaudry, I (2014, April). Parallel Computation with R. University of Massachusetts Statistics Seminar; Amherst, MA, USA.

***Ray, EL** (2012, February). Some Good Practices for R. Five College/Pioneer Valley R Users Group; Amherst, MA, USA.

Ray, EL, Krafft, P, Freedson, PS, and Staudenmayer, J (2011, May). Novel analytic methods to estimate physical activity from accelerometer data: an open-source web-based tool. Poster session presented at 2nd International Congress on Ambulatory Monitoring of Physical Activity and Movement; Glasgow, Scotland.

HONORS and AWARDS

2015	Scholarship, 7th Summer Institute in Statistics and Modeling in Infectious Diseases
2013	Honorable Mention, University of Massachusetts Institute for Computational Biology, Biostatistics, and Bioinformatics Open Source Software Innovation competition. Granted for a website allowing users to apply statistical methods for objective measurement of physical activity and the WebDevelopR R package.

VOLUNTEER EXPERIENCE

2016	Volunteer Statistical Consultant, Statistics Without Borders

PROFESSIONAL AFFILIATIONS

Member, American Statistical Association