

Kristin Linn

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Education

- 2014 **Ph.D., Statistics**, *North Carolina State University*, Raleigh, NC.
Thesis: "Interactive Model Building Techniques for Non-smooth Functionals in Dynamic Treatment Regimes"
- 2011 **Master of Statistics**, *North Carolina State University*, Raleigh, NC.
- 2008 **Bachelor of Music Performance**, *University of Michigan*, Ann Arbor, MI.

Experience

- 2014-present **Post-doctoral Researcher**, *University of Pennsylvania, Department of Biostatistics and Epidemiology*, Philadelphia, PA.
Research agenda is focused on the intersection of statistics, machine learning, and causal inference. Applications include the analysis of neuroimaging data from Alzheimer's disease, multiple sclerosis, and developmental studies.
- *IPW-SVM*: implementation of a support vector machine with inverse probability weights to adjust for confounding in the training data. <https://github.com/kalinn/IPW-SVM>
 - *marginr*: a web application for exploring the effects of feature normalization on support vector machine performance. <https://github.com/kalinn/marginr>
- Fall 2015 **Participant**, *The Recurse Center*, New York, NY.
Three month, self-directed programming retreat. Primary goals include increasing my familiarity with Python, databases, data visualization, and backend web development. Select projects:
- *pinpoint*: a web application built with Flask and deployed on AWS. <https://github.com/kalinn/pinpoint-app>
 - *lululemon sale alert*: a Chrome extension. <https://github.com/kalinn/lululemon-chrome-extension>
 - *data science job scrapers*: webscrapers that investigate the desired skill sets listed on data science job postings. Blog post about the results: <http://www.kristinlinn.com/the-most-desirable-data-scientist-in-the-us.html>
- Spring 2014 **Instructor**, *North Carolina State University*, Raleigh, NC.
Introduction to Statistics.
- Summer 2013 **Lab Instructor**, *North Carolina State University*, Raleigh, NC.
Experimental Statistics for Biological Sciences II. The class covers multiple linear regression, ANOVA, blocked and nested designs, random effects, and split-plots.

Programming

- Languages *Expertise*: R, Python; *Some experience*: C/C++, SQL, HTML/CSS, JavaScript, bash scripting, SAS
- Other tools Git, L^AT_EX, Office Suite

Software

- Linn, K.A., Laber, E.B., Stefanski, L.A. "iqLearn." R package that implements Interactive Q-learning. <https://github.com/kalinn/iqLearn>

Publications

- Linn, K.A., Gaonkar, B., Doshi, J., Davatzikos, C., Shinohara, R.T. (2015) “Control-group Feature Normalization for Multivariate Pattern Analysis using the Support Vector Machine.” Submitted.
- Linn, K.A., Gaonkar, B., Doshi, J., Davatzikos, C., Shinohara, R.T. (2015) “Multivariate Pattern Analysis and Confounding in Neuroimaging.” Under revision.
- Linn, K.A., Laber, E.B., Stefanski, L.A. (2015) “Constrained Estimation for Competing Outcomes.” To appear in a new textbook on Dynamic Treatment Regimes.
- Linn, K.A., Laber, E.B., Stefanski, L.A. (2015) “Interactive Q-learning for Probabilities and Quantiles.” Under revision, manuscript available on arXiv.
- Linn, K.A., Laber, E.B., Stefanski, L.A. (2014). “iqLearn: Interactive Q-learning in R.” *Journal of Statistical Software*. Vol. 64. Issue 1.
- Laber, E.B., Linn, K.A., Stefanski, L.A. (2014) “Interactive model building for Q-learning.” *Biometrika*. 101(4). 831–847.

Applied Work

- Linn, K.A., Wong, J.C., Shinohara, R.T., Mateen, F.J. (2015) “Modeling Incidence of Traumatic Brain Injury in Africa in 2050.” Accepted.
- Abdulhaqq, S.A., Zorrilla, C., Kang, G., Yin, X., Tamayo, V., Seaton, K.E., Jocelin Joseph, J., Garced, S., Tomaras, G.D., Linn, K.A., Andrea S. Foulkes, A.S., Azzoni, L., VerMilyea, M., Coutifaris, C., Kossenkov, A.V., Showe, L.C., Kraiselburd, E., Li, Q., Montaner, L.J., (2015) “HIV-1 Negative Female Sex Workers Sustain High Cervical IFN α , and Low Immune Activation and Expression of HIV-1 Required Host Genes.” Accepted, *Mucosal Immunology*.
- Takeshita, J., Wang, S., Shin, D.B., Callis Duffin, K., Krueger, G.G., Kalb, R.E., Weisman, J.D., Sperber, B.R., Stierstorfer, M.B., Brod, B.A., Schleicher, S.M., Robertson, A.D., Linn, K.A., Shinohara, R.T., Troxel, A.B., Van Voorhees, A.S., Gelfand, J.M. (2014) “Comparative Effectiveness of Less Commonly Used Systemic Monotherapies and Common Combination Therapies for Moderate-to-Severe Psoriasis in the Clinical Setting.” *Journal of the American Academy of Dermatology*. 71(6). 1167–1175.

Invited Presentations

- “Inverse Probability Weighting for Confounding Adjustment.” Organization for Human Brain Mapping; Honolulu, HI; June 2015. *Less than 3% of abstracts selected for invited talks.*
- “Multivariate Pattern Analysis and Confounding in Neuroimaging.” Harvard Medical School; Boston, MA; April 2015.
- “Consequences of Confounding in Predictive Modeling.” Department of Statistics, Columbia; New York, NY; October 2014.
- “Interactive Q-learning.” Department of Statistics, George Mason University; Fairfax, VA; January 2014.
- “Smooth Estimators of Optimal Dynamic Treatment Regimes.” Joint Statistical Meetings; Montréal, Canada; August 2013.