Kristin Linn

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github.com/kalinn
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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, LaTeX, 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." Under revision.
- Linn, K.A., Gaonkar, B., Doshi, J., Davatzikos, C., Shinohara, R.T. (2015) "Addressing Confounding in Predictive Models with an Application to Neuroimaging." Accepted.
- Linn, K.A., Laber, E.B., Stefanski, L.A. (2015) "Constrained Estimation for Competing Outcomes." Chapter in *Adaptive Treatment Strategies in Practice*. ASA-SIAM Statistics and Applied Probability Series.
- Linn, K.A., Laber, E.B., Stefanski, L.A. (2015) "Interactive Q-learning for 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) "Traumatic brain injury in Africa in 2050: a modeling study." *European Journal of Neurology*. 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 IFNϵ, and Low Immune Activation and Expression of HIV-1 Required Host Genes." *Mucosal Immunology*. Accepted.
- 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.

Select Invited Presentations

- "Inverse Probability Weighting for Confounding Adjustment." Organization for Human Brain Mapping; Honolulu, HI; June 2015. *Less than 3% acceptance rate.*
- "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.